

Operating Manual

BINDER Monitoring System

Humidity and Temperature Measuring Device

8012-2579

BINDER GmbH

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Dear customer,

For the correct operation of the device, it is important that you read this operating manual completely and carefully and observe all instructions as indicated. Failure to read, understand and follow the instructions may result in personal injury. It can also lead to damage to the device and/or poor equipment performance.

1. Safety

1.1 Personnel Qualification

The device must only be installed, tested, and started up by personnel qualified for assembly, startup, and operation of the device. Qualified personnel are persons whose professional education, knowledge, experience and knowledge of relevant standards allow them to assess, carry out, and identify any potential hazards in the work assigned to them. They must have been trained and instructed, and be authorized, to work on the device.

The device should only be operated by laboratory personnel especially trained for this purpose and familiar with all precautionary measures required for working in a laboratory. Observe the national regulations on minimum age of laboratory personnel.

1.2 Operating manual

This operating manual is part of the components of delivery. Always keep it handy for reference in the vicinity of the device. If selling the unit, hand over the operating manual to the purchaser.

To avoid injuries and damage observe the safety instructions of the operating manual. Failure to follow instructions and safety precautions can lead to significant risks.

	<div style="background-color: red; color: white; padding: 5px; text-align: center;">  DANGER </div> <p>Dangers due to failure to observe the instructions and safety precautions.</p> <p>Serious injuries and device damage. Risk of death.</p> <ul style="list-style-type: none"> ➤ Observe the safety instructions in this Operating Manual. ➤ Follow the operating procedures in this Operating Manual. ➤ Carefully read the complete operating instructions of the device prior to installing and using the device. ➤ Keep the operating manual for future reference
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	<p>Make sure that all persons who use the device and its associated work equipment have read and understood the Operating Manual.</p>
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This Operating Manual is supplemented and updated as needed. Always use the most recent version of the Operating Manual. When in doubt, call the BINDER Service Hotline for information on the up-to-dateness and validity of this Operating Manual.

1.3 Legal considerations

This operating manual is for informational purposes only. It contains information for correct and safe installing, start-up, operation, decommissioning, cleaning and maintenance of the product. Note: the contents and the product described are subject to change without notice.

Understanding and observing the instructions in this operating manual are prerequisites for hazard-free use and safety during operation and maintenance. Images are to provide basic understanding. They may deviate from the actual version of the device. The actual scope of delivery can, due to optional or special design, or due to recent technical changes, deviate from the information and illustrations in these instructions this operating manual. In no event shall BINDER be held liable for any damages, direct or incidental arising out of or related to the use of this manual.

This operating manual cannot cover all conceivable applications. If you would like additional information, or if special problems arise that are not sufficiently addressed in this manual, please ask your dealer or contact us directly, e.g. by phone at the number located on page one of this manual

Furthermore, we emphasize that the contents of this operating manual are not part of an earlier or existing agreement, description, or legal relationship, nor do they modify such a relationship. All obligations on the part of BINDER derive from the respective purchase contract, which also contains the entire and exclusively valid statement of warranty administration and the general terms and conditions, as well as the legal regulations valid at the time the contract is concluded. The statements in this manual neither augment nor restrict the contractual warranty provisions.

1.3.1 Intellectual property

This operating manual is protected by copyright. Any unauthorized copying or disclosure to third parties is strictly prohibited. We reserve the right to take legal action and, if necessary, to assert claims for damages in the event of infringement.

Trademark Information: All BINDER trademarks relating to products or service, as well as trade names, logos and product names used on the website, products and documents of BINDER company are trademarks or registered trademarks of BINDER company (including BINDER GmbH, BINDER Inc.) in the U.S. and other countries and communities of states. This includes word marks, position marks, word/figurative marks, design configurations, figurative marks, and design patents.

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Please visit www.binder-world.com for more information.

1.4 Structure of the safety instructions

In this operating manual, the following safety definitions and symbols indicate dangerous situations following the harmonization of ISO 3864-2 and ANSI Z535.6.

1.4.1 Signal word panel

Depending on the probability of serious consequences, potential dangers are identified with a signal word, the corresponding safety color, and if appropriate, the safety alert symbol.

 DANGER
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious (irreversible) injury.

 WARNING
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious (irreversible) injury.

 CAUTION
Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor (reversible) injury.

NOTICE

Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product and/or its functions or of a property in its proximity.

1.4.2 Safety alert symbol



Use of the safety alert symbol indicates a **risk of injury**.

Observe all measures that are marked with the safety alert symbol in order to avoid death or injury.

1.4.3 Pictograms

Warning signs			
 Electrical hazard	 Hot surface	 Explosive atmosphere	 Pollution Hazard
 Risk of corrosion and / or chemical burns	 Harmful substances	 Biohazard	
Mandatory action signs			
 Mandatory regulation	 Read operating instructions	 Disconnect the power plug	 Environment protection
 Wear protective gloves	 Wear safety goggles		
Prohibition signs			
 Do NOT touch	 Do NOT spray with water	 Do NOT climb	
	Information to be observed in order to ensure optimum function of the product.		

1.4.4 Word message panel structure

Type / cause of hazard.

Possible consequences.

- ⊘ Instruction how to avoid the hazard: prohibition
- Instruction how to avoid the hazard: mandatory action.

Observe all other notes and information not necessarily emphasized in the same way, in order to avoid disruptions that could result in direct or indirect injury or property damage.

1.5 Localization / position of information labels on the device

Information

 **BINDER**
My Support Center



MySupport.binder-world.com

QR-Code and URL to contact the BINDER Support Center (unit front)

1.6 Type plate

The type plate sticks to the bottom left side of the device.

Nominal temp.	40 °C 104 °F	0,12 kW / 1,0 A 115-240 V / 50 Hz	 
IP protection	20	115-240 V / 60 Hz	
Safety device	DIN 12880	1 N ~	
Class	---		
Art. No.	8012-2579		
Project No.			
Built	2025	Monitoring System	



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THMS-01



Serial No. 0000000000000

Made in Germany

Figure 1: Type plate

Indications of the type plate

Indication		Information
BINDER		Manufacturer: BINDER GmbH
THMS-01		Model designation
Serial No.	00000000000000	Serial no.
Nominal temperature	40 °C 104°F	Nominal temperature
Built	2024	Year of construction
IP protection	IP 20	IP type of protection acc. to standard EN 60529
Temp. safety device	DIN 12880	---
Class	---	---
Art. No.	8012-2579	Art. no.
Project No.	---	Optional: Special application acc. to project no.
0,12 kW		Nominal power
1,0 A		Nominal current
115-240 V, 50 Hz 115-240 V, 60 Hz		Nominal voltage range +/-10% at the indicated power frequency
1 N ~		Current type

Symbols on the type plate

Symbol	Information
	CE conformity marking
	Electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

1.7 UKCA Label

The sticker with UKCA Authorised Representative details sticks next to the type plate to the left side of the device, bottom right-hand.



Figure 2: UKCA Label

Symbol on the sticker

Symbol	Information
	UKCA conformity marking

1.8 General safety instructions on installing and operating the device

With regard to operating the device and to the installation location, please observe the local and national regulations relevant for your country (for Germany: DGUV guidelines 213-850 on safe working in laboratories, issued by the employers' liability insurance association).

BINDER GmbH is only responsible for the safety features of the device provided skilled electricians or qualified personnel authorized by BINDER perform all maintenance and repair, and if components relating to device safety are replaced in the event of failure with original spare parts.

	NOTICE
	<p>Danger of overheating due to lack of ventilation.</p> <p>Damage to the device.</p> <ul style="list-style-type: none"> ⊘ Do NOT install the device in unventilated recesses. ➤ Ensure sufficient ventilation for dispersal of the heat.

The device is **not** suitable for monitoring potentially explosive areas or test vessels with explosive content. Do not install or operate the device in hazardous locations.

	 DANGER
	<p>Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the device.</p> <p>Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ⊘ Do NOT operate the device in potentially explosive areas. ⊘ KEEP combustible dust or air-solvent mixtures AWAY from the device.

	NOTICE
	<p>Danger of contamination of the usable space of the climatic chamber/ climate room.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ➤ Observe the hygiene and work regulations applicable in the laboratory. ➤ Clean the sensor before and after use (chap. 12.2).

	 DANGER
	<p>Electrical hazard by water entering the device.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ⊘ The device must NOT become wet during operation, cleaning, or maintenance. ⊘ Do NOT install the device in damp areas or in puddles. ➤ Set up the device so that it is splash-proof.

The devices were produced in accordance with VDE regulations and were routinely tested in accordance to VDE 0411-1 (IEC 61010-1).

The sensors will become hot during operation at a high temperature of the climatic chamber/ climate room.

	 CAUTION
	<p>Danger of burning when touching a hot sensor during or after operation.</p> <p>Burns.</p> <p>∅ Do NOT touch the sensor with a high operating temperature during or after operation.</p>

1.9 Intended use

	<p>Following the instructions in this operating manual and conducting regular maintenance work (chap. 13) are part of the intended use.</p>
---	---

Any use of the device that does not comply with the requirements specified in this Operating Manual shall be considered improper use.

Other applications than those described in this chapter are not approved.

Use

The BINDER Monitoring System accessory is suitable for measuring temperature in a range from $-40\text{ }^{\circ}\text{C}$ / $-40\text{ }^{\circ}\text{F}$ up to $+180\text{ }^{\circ}\text{C}$ / $356\text{ }^{\circ}\text{F}$ with simultaneous acquisition of the humidity from 0 % r.H. to 100 % r.H. The measured data can be recorded and stored via PC with the optionally available network-capable software APT-COM™ 4. The alarm function makes the device particularly suitable for the remote monitoring of important and sensitive processes.

The BINDER Monitoring System accessory is intended for use with climatic chambers/climate rooms. The operating manuals for these chambers, especially the safety instructions and the intended use, must be observed when using the accessory.

The device is **not** suitable for monitoring potentially explosive areas or test vessels with explosive content. In these cases there is risk of explosion. The device does not dispose of any measures of explosion protection.

 	 DANGER
	<p>Explosion or implosion hazard and danger of poisoning through the introduction of unsuitable loading material.</p> <p>Poisoning. Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ∅ Do NOT introduce any substance combustible or explosive at working temperature into the monitored chamber, in particular no energy sources such as batteries or lithium-ion batteries. ∅ NO explosive dust or air-solvent mixture in the monitored chamber. ∅ Do NOT introduce any substance into the monitored chamber which could lead to release of toxic gases.

Contamination of the device by toxic, infectious or radioactive substances must be prevented.

	WARNING
 	<p>Danger of intoxication and infection through contamination of the device with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ➤ Protect the interior of the monitored chamber from contamination by toxic, infectious or radioactive substances. ➤ Take suitable protective measures when introducing and removing toxic, infectious or radioactive material

In case of foreseeable use of the device there is no risk for the user through the integration of the device into systems or by special environmental or operating conditions in the sense of EN 61010-1:2010. For this, the intended use of the device and all its connections must be observed.

Medical devices

The devices are not classified as medical devices as defined by Regulation (EU) No 2017/745.

Personnel Requirements

Only trained personnel with knowledge of the Operating Manual can set up and install the device, start it up, operate, clean, and take it out of operation. Service and repairs call for further technical requirements (e.g. electrical know-how), as well as knowledge of the service manual.

Installation site requirements

The device is designed for setting up inside a building (indoor use).

The requirements described in the Operating Manual for installation site and ambient conditions (Chap. 3.4) must be met.

1.10 Foreseeable Misuse

Other applications than those described in chap. 1.9 are not approved.

This expressly includes the following misuses (the list is not exhaustive), which pose risks despite the inherently safe construction and existing technical safety equipment:

- Non-observance of Operating Manual
- Non-observance of information and warnings on the device (e.g. control unit messages, safety identifiers, warning signals)
- Installation, startup, operation, maintenance and repair by untrained, insufficiently qualified, or unauthorized personnel
- Missed or delayed maintenance and testing
- Non-observance of traces of wear and tear
- Insertion of materials into the monitored chamber which are excluded or not permitted by this Operating Manual.

-
- Non-compliance with the admissible parameters for processing the respective material.
 - Installation, testing, service or repair in the presence of solvents
 - Installation of replacement parts and use of accessories and operating resources not specified and authorized by the manufacturer
 - Bypassing or changing protective systems, operation of the device without the designated protective systems
 - Non-observance of messages regarding cleaning and disinfection of the device.
 - Spilling water or cleaning agent on the device, water penetrating into the device during operation, cleaning or maintenance.
 - Cleaning activity while the device is turned on.
 - Operation of the device with a damaged housing or damaged power cord
 - Continued operation of the device during an obvious malfunction
 - Insertion of objects, particularly metallic objects, in openings or slots on the device
 - Human error (e.g. insufficient experience, qualification, stress, exhaustion, laziness)

To prevent these and other risks from incorrect operation, the operator shall issue operating instructions. Standard operating procedures (SOPs) are recommended.

1.11 Residual Risks

The unavoidable design features of a device, as well as its proper field of application, can also pose risks, even during correct operation. These residual risks include hazards which, despite the inherently safe design, existing technical protective equipment, safety precautions and supplementary protective measures, cannot be ruled out.

Messages on the device and in the Operating Manual warn of residual risks. The consequences of these residual risks and the measures required to prevent them are listed in the Operating Manual. Moreover, the operator must take measures to minimize hazards from unavoidable residual risks. This includes, in particular, issuing operating instructions.

The following list summarizes the hazards against which this Operating Manual and the Service Manual warn, and specifies protective measures at the appropriate spots:

Unpacking, Transport, Installation

- Setup of the device in unauthorized areas
- Installation of a damaged device
- Installation of a device with damaged power cord
- Inappropriate site of installation
- Missing protective conductor connection

Normal operation

- Assembly errors
- Contact with live parts in normal state

Cleaning and Decontamination

- Penetration of water into the device
- Inappropriate cleaning and decontamination agents

Malfunction and Damage

- Continued operation of the device during an obvious malfunction
- Contact with live parts during error status
- Operation of a unit with damaged power cord

Maintenance

- Maintenance work on live parts.
- Execution of maintenance work by untrained/insufficiently qualified personnel
- Electrical safety analysis during annual maintenance not performed

Trouble-shooting and Repairs

- Non-observance of warning messages in the Service Manual
- Trouble-shooting of live parts without specified safety measures
- Absence of a plausibility check to rule out erroneous inscription of electrical components
- Performance of repair work by untrained/insufficiently qualified personnel
- Inappropriate repairs which do not meet the quality standard specified by BINDER
- Use of replacement parts other than BINDER original replacement parts
- Electrical safety analysis not performed after repairs

1.12 Resistance of the humidity sensor against harmful substances

The following list of harmful substances refers only to the humidity sensor and does not include any other materials incorporated in the device or prohibited substances in relation to explosion protection.

Some gases - especially clean gases - do not have any influence on the humidity sensor. Others do have a very small influence, whereas others may influence the sensor to a larger extent.

- The following gases do not influence the sensor and the humidity measurement: Argon (Ar), carbon dioxide (CO₂), helium (He), hydrogen (H₂), neon (Ne), nitrogen (N₂), nitrous oxide (N₂O), oxygen (O₂)
- The following gases do not or to a minor extent influence the sensor and the humidity measurement: Butane (C₄H₁₀), ethane (C₂H₆), methane (CH₄), natural gas propane (C₃H₈)
- The following gases do not, or to a minor extent influence the sensor and the humidity measurement, provided that the indicated loads are not exceeded:

Substance	Formula	Maximum work place threshold limit value		Tolerated concentration with permanent load	
		ppm	mg/m ³	ppm	mg/m ³
Ammonia	NH ₃	20	14	5500	4000
Acetone	CH ₃ COCH ₃	500	1200	3300	8000
Benzene		300	1200		150000
Chlorine	Cl ₂	0.5	1.5	0.7	2
Acetic acid	CH ₃ COOH	10	25	800	2000
Ethyl acetate	CH ₃ COOC ₂ H ₅	400	1400	4000	15000
Ethanol	C ₂ H ₅ OH	500	960	3500	6000
Ethylene glycol	HOCH ₂ CH ₂ OH	10	26	1200	3000
Formaldehyde	HCHO	0.3	0.37	2400	3000
Isopropanol	(CH ₃) ₂ CHOH	200	500	4800	12000
Methanol	CH ₃ OH	200	260	3500	6000
Methyl ethyl ketone	C ₂ H ₅ COCH ₃	200	590	3300	8000
Ozone	O ₃	0.1	0.2	0.5	1
Hydrochloric acid	HCl	2	3	300	500
Hydrogen sulphide	H ₂ S	10	15	350	500
Nitrogen oxides	NO _x	5	9	5	9
Sulphur dioxide	SO ₂	5	13	5	13
Toluol	C ₆ H ₅ CH ₃	100	380	1300	5000
Xylene	C ₆ H ₄ (CH ₃) ₂	100	440	1300	5000

These values are to be considered as approximate values. The sensor resistance largely depends on the temperature and humidity conditions during the time of exposure to harmful substances. Avoid simultaneous condensation. Tolerated error of measurement: +/- 2 % r.h. The maximum work place threshold limit value is one that can be regarded as harmless for humans.

- Vapors of oil and fat are dangerous for the sensor because they may condensate at the sensor and thus prevent its function (insulating layer). For similar reasons it is not possible to measure smoke gases.

2. Device description

The BINDER Monitoring System accessory has been specially developed for determination of temperature and humidity concentration in climatic chambers/climate rooms and is suitable for measuring ranges from $-40\text{ }^{\circ}\text{C}$ / $-40\text{ }^{\circ}\text{F}$ up to $+180\text{ }^{\circ}\text{C}$ / $356\text{ }^{\circ}\text{F}$ and from 0 % r.H. to 100 % r.H.

It can be used both for reference measurements in certified laboratories, as well as for service purposes.

The measuring system consists of the following parts: The measuring station, which remains outside the climatic chamber/climate room, and the sensors for temperature and humidity, which are put in the center of the usable volume. Measuring station and sensors are connected by cables, which can be laid across the door gasket of the climatic chamber/climate room or led through an access port of the climatic chamber/climate room without causing leakages.

The accessory BINDER Monitoring System is characterized by extremely easy handling and fast reaction times, as well as the highest accuracy. The accuracy of the humidity sensor bases on its capacitive measuring system.

Temperature and humidity are displayed on the large controller display accurate to one-tenth of a degree resp. 0.1% r.h.

The device comes equipped with an Ethernet serial interface for computer communication. The measured data of temperature and humidity concentration are given out to the interface and can easily be recorded, stored and graphically represented via PC using the optional APT-COM™ communication software (accessory) developed by BINDER. The comfortable BINDER APT-COM™ 4 Multi Management Software permits networking up to 100 devices and connecting them to a PC, monitoring the climatic chambers/climate rooms and recording and representing temperature and humidity data.

For monitoring, the nominal values set in the climatic chamber/climate room can be entered into the controller of BINDER Monitoring System. If these nominal values are exceeded or fallen below by adjustable tolerances, this is reported by the unit optically and acoustically. The alarm function only becomes active if both measured values were previously within the tolerance limits.

Entry of these values is easily accomplished via the modern MB2 touch screen controller and is also possible directly with a computer via Intranet in connection with the APT-COM™ 4 Multi Management Software (accessory).

BINDER Monitoring System has magnets on the back for easy attachment.

2.1 Device overview

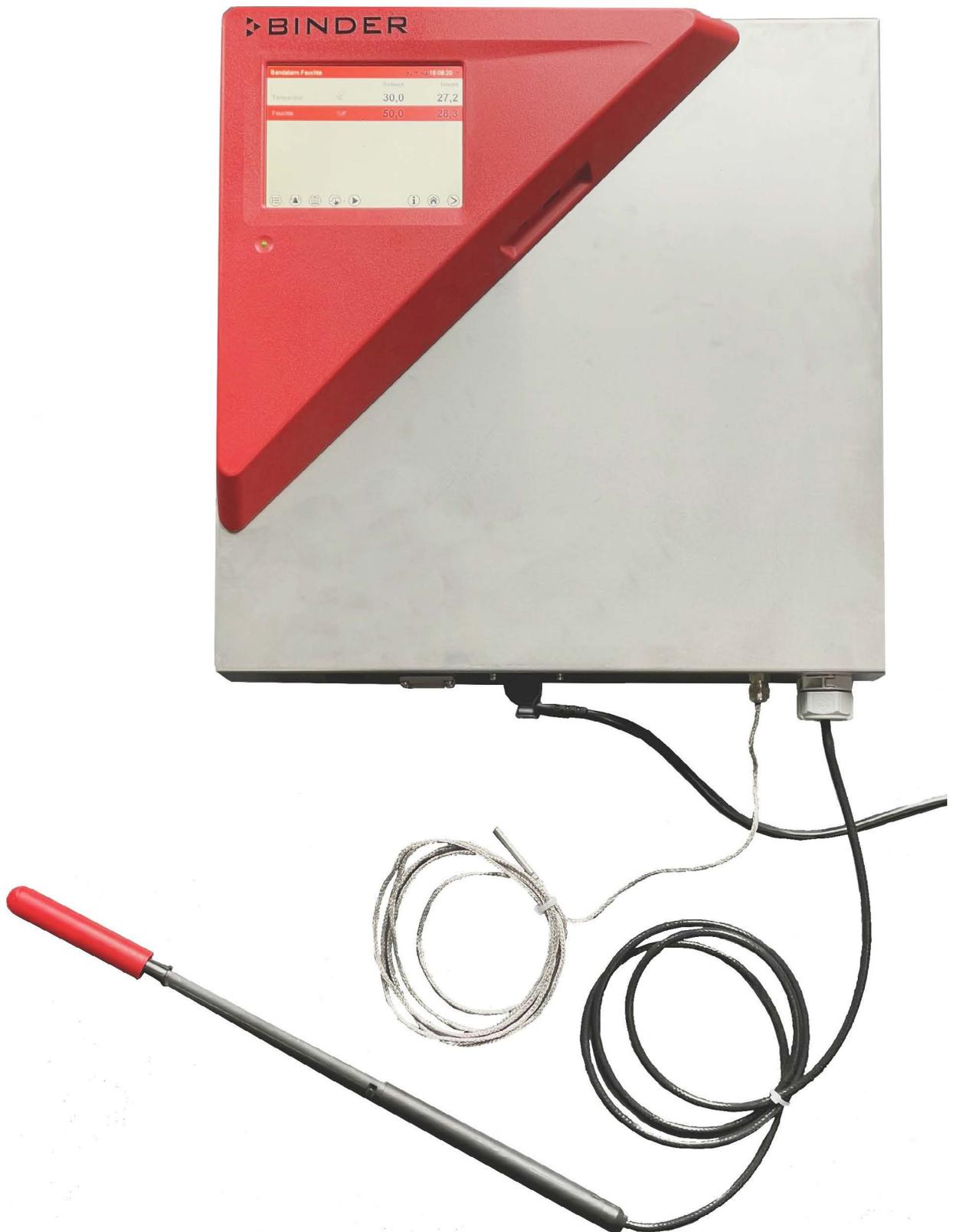


Figure 3: BINDER Monitoring System: measuring station, power cable, and sensors

2.2 Instrument panel

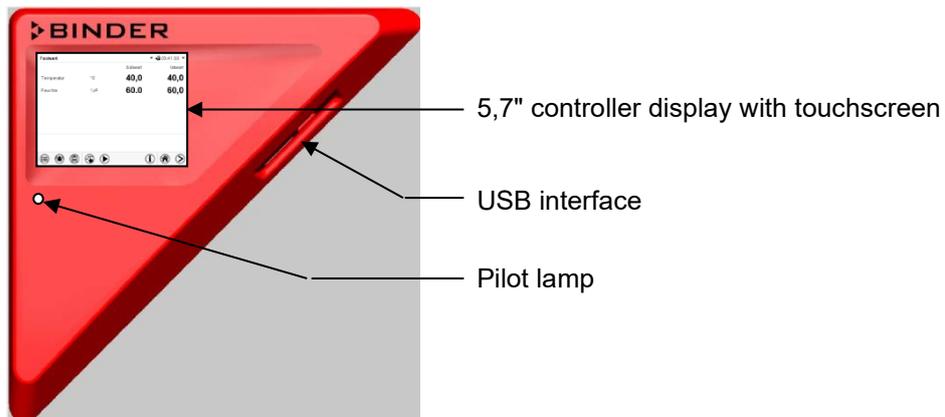


Figure 4: Instrument panel with MB2 program controller and USB interface

2.3 Connections

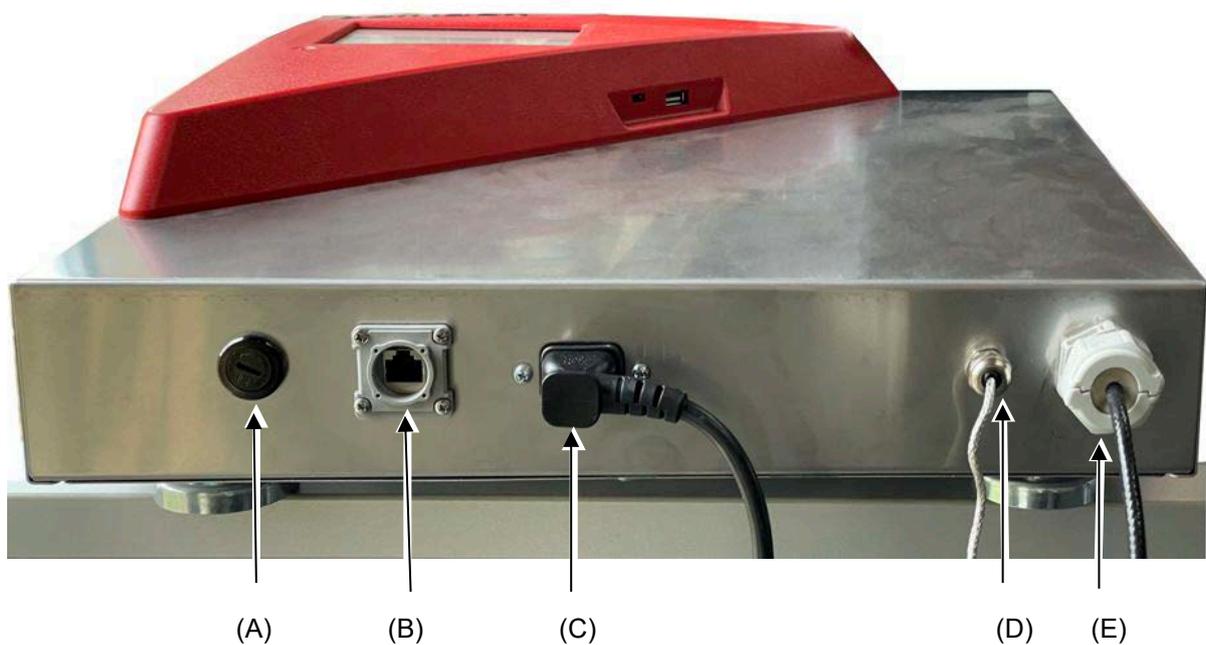


Figure 5: Connections at the measuring station

- (A) Fuse link for fine-wire fuse 250V 1A semi-time lag
- (B) Ethernet interface for data transmission with APT-COM™ 4 communication software (accessory)
- (C) Plug of the power supply cable
- (D) Pt100 temperature sensor
- (E) Capacitive humidity sensor

2.4 Rear view

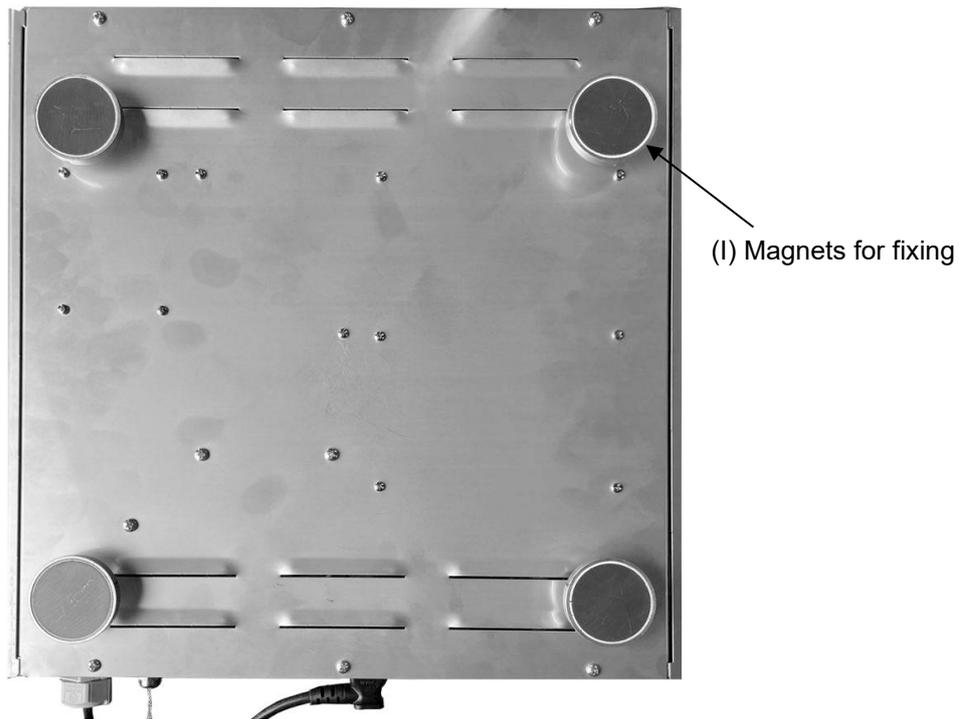


Figure 6: Rear view of measuring station

3. Completeness of delivery, transportation, storage, and installation

3.1 Unpacking, and checking equipment and completeness of delivery

After unpacking, please check the accessory based on the delivery note for completeness and for transportation damage. If transportation damage has occurred, immediately inform the carrier or post office/parcel service.

Please remove any transportation protection devices and adhesives in/on the equipment.

The scope of delivery includes the following items:

- Measuring station (430 mm x 400 mm x 145 mm / 16.93 in x 15.75 in x 5.71 in) (W x H x D)
- Power connection cable 2 m / 6.6 ft with IEC connector plug
- Temperature sensor with cable 2 m / 6.6 ft
- Humidity sensor with cable 2 m / 6.6 ft
- Operating manual Art. No. 7001-0713

If you need to return the device, please use the original packing and observe the guidelines for safe transportation (chap. 3.2).

For disposal of the transport packing, see chap. 14.1.

Note on second-hand units (Ex-Demo-Units):

Second-hand units are units that have been used for a short time for tests or exhibitions. They are thoroughly tested before resale. BINDER guarantees the technically flawless state of the device.

Second-hand units are marked as such with a sticker on the unit door. Please remove the sticker before commissioning the unit.

3.2 Guidelines for safe transportation

You can order transport packing for moving or shipping purposes from BINDER service.

Permissible ambient temperature range during transport: -10 °C / 14 °F to +60 °C / 140 °F.

3.3 Storage

Intermediate storage of the unit is possible in a closed and dry room. Observe the guidelines for temporary decommissioning (chap. 14.2).

- Permissible ambient temperature range: -10 °C / 14 °F to +60 °C / 140 °F.
- Permissible ambient humidity: max. 70 % r.H., non-condensing

If following storage in a cold location the unit is transferred to the installation site for start-up, condensation may form. Wait at least one hour until the measuring device has attained ambient temperature and is completely dry.

3.4 Location of installation and ambient conditions

BINDER Monitoring System can be mounted on a vertical surface that is suitable for magnetic attachment. You can attach the measuring station directly to the wall of the monitored climatic chamber/climate room using the magnets on the back.

	NOTICE
	<p>Danger of overheating due to lack of ventilation.</p> <p>Damage to the device.</p> <ul style="list-style-type: none"> ⊘ Do NOT install the device in unventilated recesses. ➤ Ensure sufficient ventilation for dispersal of the heat.

Do not install or operate the device in potentially explosive areas.

	 DANGER
	<p>Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the device.</p> <p>Serious injury or death from burns and / or explosion pressure.</p> <ul style="list-style-type: none"> ⊘ Do NOT operate the device in potentially explosive areas. ➤ KEEP explosive dust or air-solvent mixtures AWAY from the vicinity of the device.

Ambient conditions for the measuring station

- Permissible ambient temperature range during operation: +5 °C / 41 °F to +40 °C / 104 °F. At elevated ambient temperature values, fluctuations in temperature can occur.

	<p>The ambient temperature should not be substantially higher than the indicated ambient temperature of +22 °C +/- 3 °C / 71.6 °F +/- 5.4 °F to which the specified technical data relate. Deviations from the indicated data are possible for other ambient conditions.</p>
---	--

- Permissible ambient humidity: 70 % r.h. max., non-condensing
When operating the device at temperature set-points below ambient temperature, high ambient humidity may lead to condensation.
- Installation height: max. 2000 m / 6562 ft. above sea level.

Other requirements

To separate the device from the power supply, you must disconnect the power plug. Install the device in a way that the power plug is easily accessible and can be easily pulled in case of danger.

For the user there is no risk of temporary overvoltages in the sense of EN 61010-1:2010.

4. Installation and connections

4.1 Mounting on the climatic chamber/climate room

There are four magnets on the back of the measuring station.

Mount the measuring station anywhere on an exterior wall of the climatic chamber/climate room. Mounting on a side wall is recommended.

4.2 Connecting the sensors

Insert the temperature sensor plug into the designated socket (D) on the bottom of the measuring station.

Insert the humidity sensor plug into the designated socket (E) on the bottom of the measuring station.

Remove the red protective cap from the humidity sensor before taking a measurement.

4.3 Electrical connection

BINDER Monitoring System comes with an IEC connector plug with strain relief and a power connection cable that has a length of 2 m / 6.6 ft.



The device does not have an on/off switch. Once connected to the power supply, the device is operational.

- Nominal voltage +/-10%:
115-240 V at 50 Hz and 60 Hz
- Power plug:
Grounded plug C14
NEMA 5-15P
- Current type: 1N~
- Device fuse: 250 V 1A medium time-lag

- The domestic socket must also provide a protective conductor. Make sure that the connection of the protective conductor of the domestic installations to the device's protective conductor meets the latest technology. The protective conductors of the socket and plug must be compatible!

	 DANGER
	<p>Electrical hazard due to missing protective conductor connection.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ➤ Make sure that the device's power plug and the power socket match and securely connect the electrical protective conductors of the device and the house installation.

- Only use original connection cables from BINDER according to the above specification.
- Prior to connection and start-up, check the power supply voltage. Compare the values to the specified data located on the device's type plate (left side of the measuring station, see chap. 1.6).

	NOTICE
	<p>Danger of incorrect power supply voltage due to improper connection.</p> <p>Damage to the device.</p> <ul style="list-style-type: none"> ➤ Check the power supply voltage before connection and start-up. ➤ Compare the power supply voltage with the data indicated on the type plate.

- When connecting, please observe the regulations specified by the local electricity supply company as well as the local or national electrical regulations (VDE directives for Germany).
- Observe a sufficient current protection according to the number of devices that you want to operate. We recommend the use of a residual current circuit breaker.
- Pollution degree (acc. to IEC 61010-1): 2
- Installation category (acc. to IEC 61010-1): II

See also electrical data (chap. 15.2).

Insert the power plug of the measuring station into a specified socket.

	<p>To completely separate the device from the power supply, you must disconnect the power plug. Install the device in a way that the power plug is easily accessible and can be easily pulled in case of danger.</p>
---	--

5. Functional overview of the MB2 device controller

The MB2 controller measures and monitors the following parameters inside the climatic chamber/climate room:

- Temperature in °C or °F
- Relative humidity in % r.h.

You can enter the desired set point values in Measurement operation directly on the display surface or via the setpoint menu.

The controller offers various notifications and alarm messages with visual and audible indication and remote alarms via e-mail, an event list (trace file) and the graphical display of the measuring values in the chart recorder view. The input of monitoring values and recording of measured values can be done directly on the controller or using the APT-COM™ 4 Multi Management Software (accessory) specially developed by BINDER.

5.1 Display views

The actual values of temperature and humidity are displayed on the large controller display accurate to one-tenth of a degree resp. 0.1% r.H.

For monitoring, the nominal values set in the climatic chamber/climate room can be entered into the controller of BINDER Monitoring System. If these nominal values are exceeded or fallen below by permanently set tolerances, this is reported by the unit optically and acoustically, as well as via a zero-voltage relay alarm contact. The alarm function only becomes active if both measured values were previously within the tolerance limits.

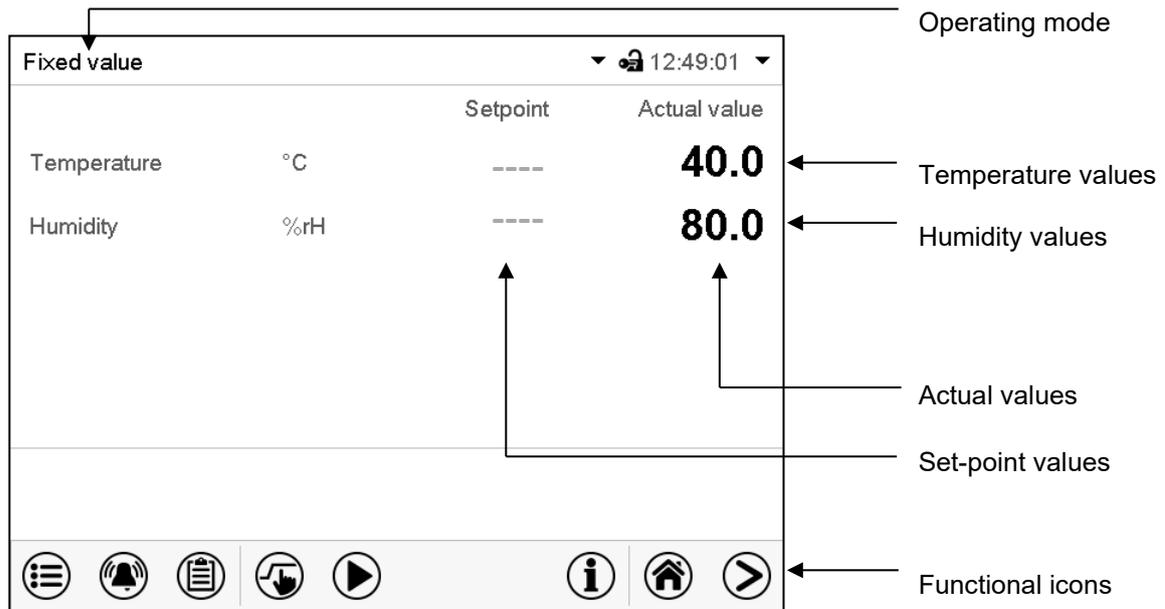


Figure 7: Normal display of the MB2 program controller in **Display operation** (sample values)

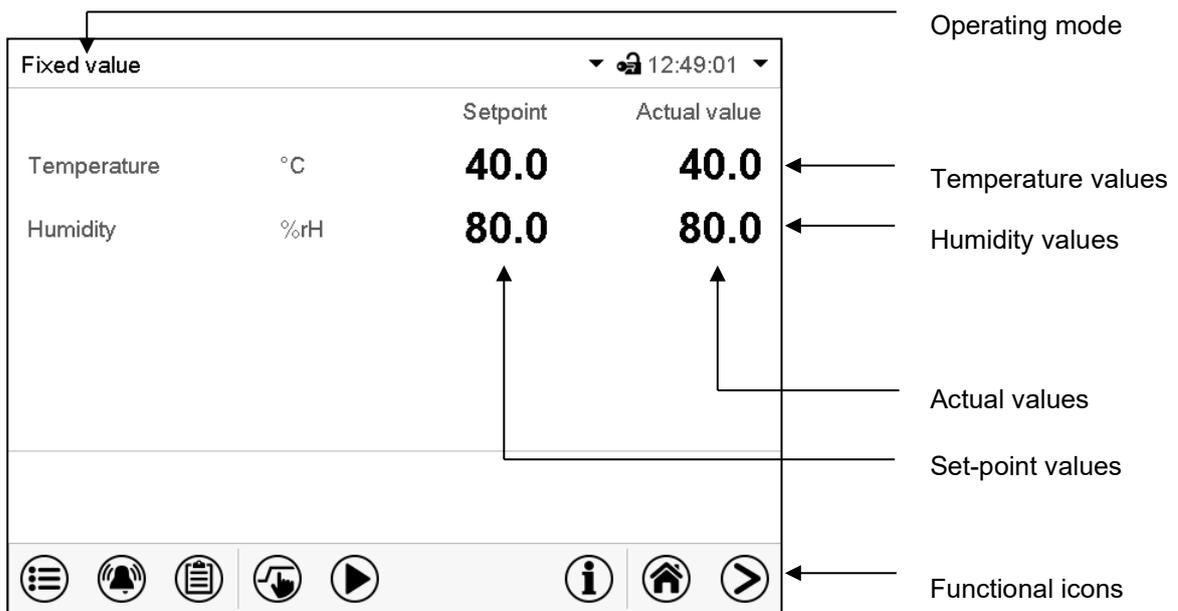


Figure 8: Normal display of the MB2 program controller in **Measurement operation** (sample values)

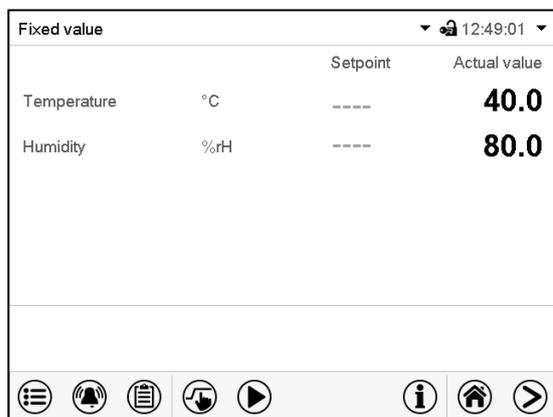
Indication of the measurement results

The measurement results are shown on the display of the measuring station.

The measured values can be transmitted via the Ethernet interface (B) to a PC with the optional APT-COM™ 4 communication software from BINDER. In addition, APT-COM™ 4 enables convenient data storage and alarming through warning messages on the PC as well as remote alarming. For detailed information, please refer to the operating instructions of the APT-COM™ 4 communication software.

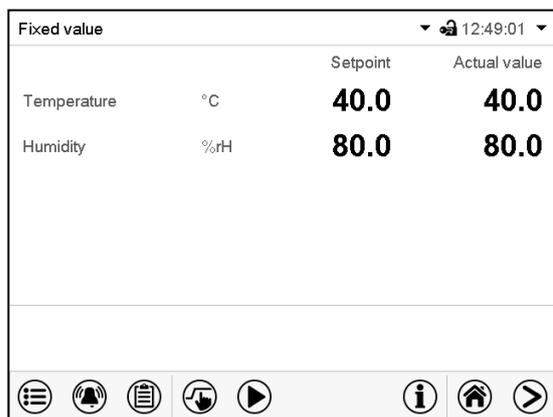
5.2 Display views: Normal display and chart-recorder display

	Press the Change view icon to toggle between normal display and chart-recorder display.
	Press the Normal display icon to return from the chart recorder display back to Normal display.



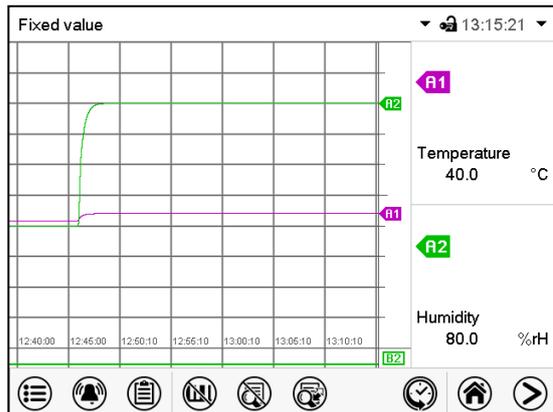
Display operation

The current actual values are shown.
The alarm function (chap. 7) is inactive.



Measurement operation

The entered set-points of temperature and humidity are shown and compared to the actual values. For the setting see chap. 6.2
When the measured values have been within the tolerance limits at least once, the alarm function (chap. 7) is active.



5.3 Controller icons overview

Navigation icons in Normal display

Icon	Signification	Function
	Main menu	Access from Normal display to the main menu
	Alarm	Access from Normal display to the list of active alarms
	Event list	Access from Normal display to the event list
	Setpoint setting	Access from Normal display to the setpoint entry menu: setpoint entry for Fixed value operation, turning on/off humidity control, safety controller settings
	Program start	No function
	Program pause	No function
	Program cancelling	No function
	Information	Information on program operation, setpoints, actual values, and the safety controller
	Normal display	Return from program display or chart recorder display to Normal display
	Change view	Toggle between Normal display, program display, and chart recorder display

Functional icons in individual menus

Icon	Signification	Function
	Back	Return from each menu to Normal display
	Update	Update the event list and alarm messages
	Confirm	Take over the entries and exit the menu / continue menu sequence.
	Close	Exit the menu / cancel menu sequence. Entries are not taken over. When terminating a menu sequence, an information window appears, which must be confirmed.
	Reset alarm	Acknowledge the alarm and mute the buzzer.
	Change keyboard	Change between uppercase and lowercase characters, digits and special characters
	Edit	Edit settings of time and week programs

Functional icons in the chart recorder display

Icon	Signification	Function
	Show legend	Show legend
	Hide legend	Hide legend
	History display	Pause chart recorder and change to history display. Data recording continues.
	Curve selection	Go to "Curve selection" submenu in the history display
	Search	Go to "Search" submenu in the history display to select the required instant
	Zoom	Go to "Zoom" submenu in the history display to select the zoom factor
	Show scroll buttons	Show scroll buttons in the history display to scroll to an instant
	Hide scroll buttons	Hide scroll buttons in the history display to scroll to an instant

Information icons referring to device conditions

Icon	Text information	Condition
	"Idle mode"	Controller is in Idle mode
	"Temperature range"	Current actual temperature value outside the tolerance range
	"Humidity range"	Current actual humidity value outside the tolerance range

Information icon for data processing

Icon	Information
	Waiting icon: Data processing is running. Remaining time to touch the display when calibrating the touchscreen.

5.4 Operating modes

The MB2 controller operates in the following operating modes:

- **Display operation**

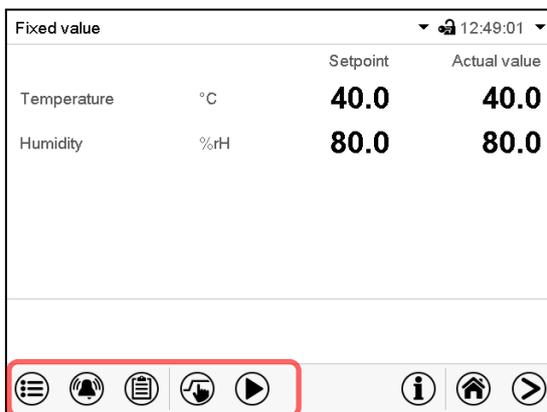
The current actual values for temperature and humidity of the monitored chamber are displayed.

- **Measurement operation**

The controller operates as a fixed-point controller, i.e., set-points for temperature, humidity, and fan speed can be defined, which are then monitored until the next manual change (chap. 6.2).

5.5 Controller menu structure

Use the **navigation icons** in the screen footer in Normal display to access the desired controller functions.



The available functions depend on the current **authorization level** “Service”, “Admin” or “User” (chap. 8.1). This is selected either during login or can be available without password protection.

	Main menu: program settings, further information, “Service” submenu. The “Settings” submenu allows general configuration of the controller.	chap. 5.5.1
	List of active alarms	chap. 7
	Access to the event list	chap. 10.3
	Turning on/off Measurement operation , Setpoint entry for monitoring	chap. 6.1, 6.2
	No function	

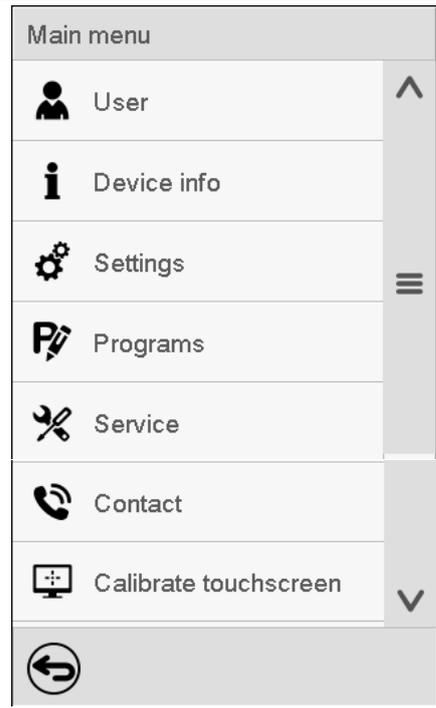
Unless noted otherwise, the figures show the functional range, which is available for the user with “Admin” authorization level.

5.5.1 Main menu

The main menu provides access to the general configuration of the controller as well as to program entry and the user administration. Additionally, there are support functions like a contact page or the display calibration depending on the available angle.

	Press the Main menu icon to access the main menu from Normal Display.
	Press the Back icon to return from each setting menu to Normal Display.

The main menu provides the following functions and submenus.

			
	User	User management: login and logout, password management	chap. 8
	Device info	Device information	chap. 10.2
	Settings	“Settings” submenu (not visible for user with “User” authorization level)	chap. 9
	Programs	No function	
	Service	“Service” submenu	chap. 5.5.3
	Contact	BINDER Service contact page	chap. 10.1
	Calibrate touchscreen	Calibrating the touch screen	chap. 9.4.2
	Back to Normal Display		

“Settings” submenu

- Settings of many general controller functions and network settings (chap. 9).
- Available only for users with “Service” and “Admin” authorization level

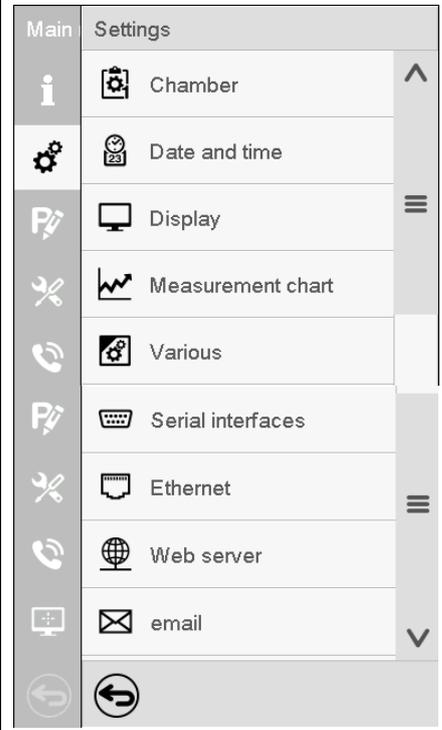
“Service” submenu

- Access to service data, controller reset to factory settings (chap. 5.5.3)
- Available only for users with “Service” and “Admin” authorization level. Full functional range only for BINDER Service (users with “Service” authorization level).

5.5.2 “Settings” submenu

The “Settings” submenu is available for users with “Service” or “Admin” authorization level. It serves to enter date and time, select the language for the controller menus and the desired temperature unit and to configure the controller’s communication functions.

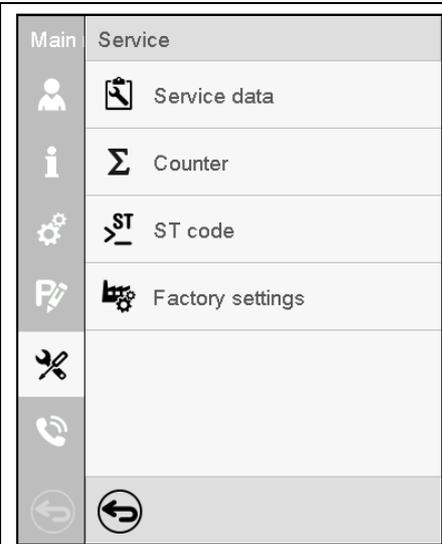
Path: [Main menu > Settings](#)

	Chamber	Setting the temperature unit, menu language...	chap. 9.1, 9.3
	Date and time	Setting date and time	chap. 9.2
	Display	Setting the display brightness, continuous operation and screen saver	chap. 9.4
	Measurement chart	Settings for the measurement chart: storage interval, storage values, minimum and maximum values	chap. 11.2
	Various	Setting the tolerance range and delay time for tolerance range alarm	chap. 6.3
	Serial interfaces	No function	
	Ethernet	Entry of the MAC address and IP address	chap. 9.5
	Web server	No function	
	email	Configuration of the e-mail server, assignment of e-mail addresses	chap. 9.5.3
		Back to main menu	

5.5.3 “Service” submenu

The “Service” submenu is available for users with “Service” or “Admin” authorization level. When logged-in with “Admin” authorization level the user will find information to tell the BINDER Service in service case.

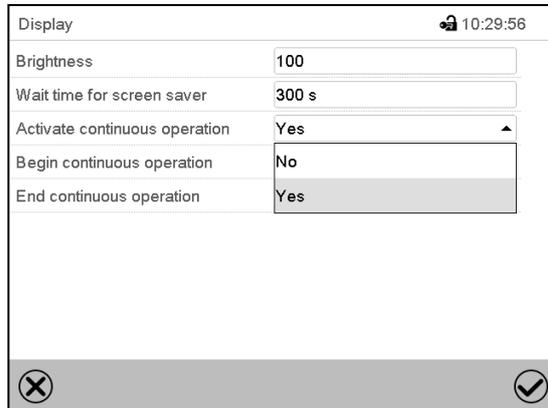
Path: [Main menu > Service](#)

	Service data	Serial number of the device, setup version of the controller software	
	Counter	No function	
	ST code	Information for BINDER Service	
	Factory settings	Reset to factory settings	
		Back to main menu	

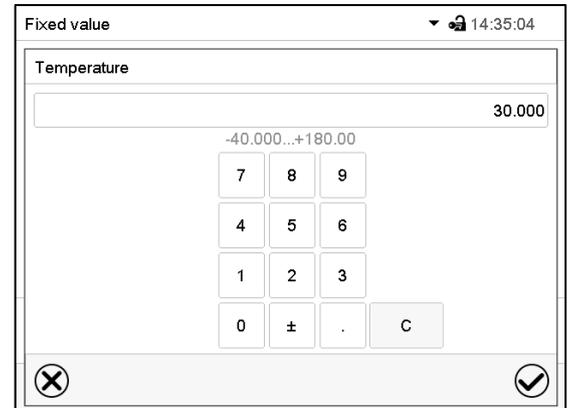
(view with “Admin” authorization level)

5.6 Principle of controller entries

In the selection and entry menus there are icons displayed in the footers which you can use to take over the entry or cancel it.



Selection menu (example)



Entry menu (example)

After completing the settings there are the following possibilities:

	Press the Confirm icon to take over the entries and exit the menu or continue the menu sequence.
	Press the Close icon to exit the menu or cancel the menu sequence without taking over the entries. When terminating a menu sequence, an information window appears, which must be confirmed.

6. Start up

For measurements in climatic chambers/climate rooms, place the sensors in the center of the usable volume and lead the cables over the door gasket or through an access port to the measuring station. Close the chamber door or close the access port from both sides with the corresponding silicon plugs.

Due to the introduction of the sensor, there is a principle risk of contamination of the usable space of the climatic chamber/climate room.

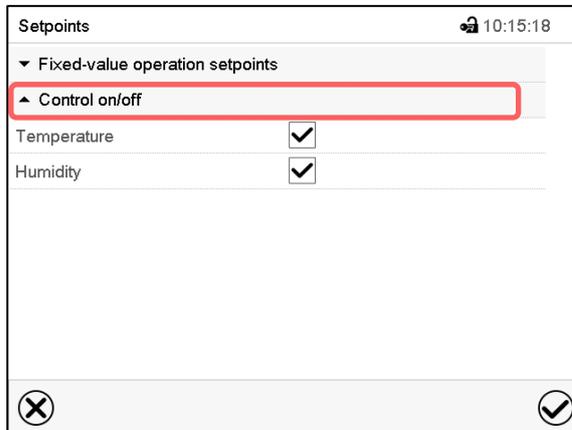
	NOTICE
	<p>Risk of contamination of the usable space of the climatic chamber/climate room.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ➤ Observe the hygiene and work regulations applicable in the laboratory. ➤ Clean the sensors before and after use (chap. 12.2).

Connect BINDER Monitoring System to the power supply (chap. 4.3)

Set the climatic chamber/climate room to its operating temperature and to the humidity and let it equilibrate. The waiting time until safe homogenization of temperature and humidity inside a chamber/climate room is approx. 1 hour. Please observe the information provided by the chamber's manufacturer.

6.1 Turning on/off Measurement operation

 Press the **Setpoint setting** icon to access the “Setpoint” setting menu from Normal display.



“Setpoints” menu.

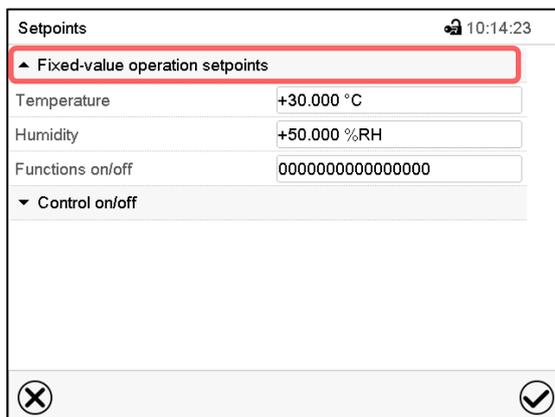
Select “Control on/off” to turn Measurement operation for temperature and/or humidity on or off

Mark / unmark the checkbox to activate / deactivate the desired parameter and press the **Confirm** icon

6.2 Entering the set-points to be monitored

 The set-point values of the monitored climatic chamber or climate room must be entered to the measuring device, in order to enable monitoring. Please note that it is not possible to CONTROL the climate via the Monitoring System THMS-01!

 Press the **Setpoint setting** icon to access the “Setpoint” setting menu from Normal display.



“Setpoints” menu.

Select “Fixed value operation setpoints” to access the individual parameters.

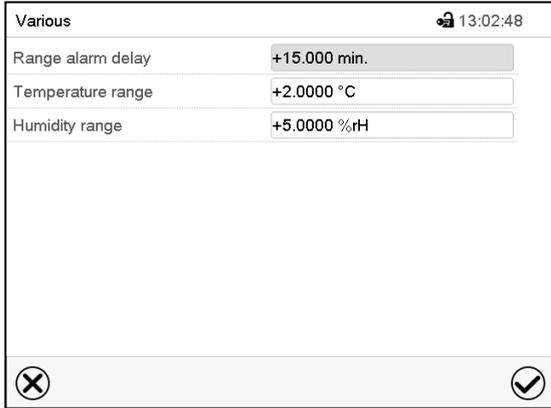
- Select the field “Temperature” and enter the desired temperature setpoint.
Confirm entry with **Confirm** icon.
- Select the field “Humidity” and enter the desired humidity setpoint.
Confirm entry with **Confirm** icon.

6.3 Tolerance range settings

In this menu you can set the deviation between the actual value and setpoint which shall cause a tolerance range alarm.

This function only activates after the set-point has been reached once.

Path: [Main menu](#) > [Settings](#) > [Various](#)



Various		🔒 13:02:48
Range alarm delay	<input type="text" value="+15.000 min."/>	
Temperature range	<input type="text" value="+2.0000 °C"/>	
Humidity range	<input type="text" value="+5.0000 %rH"/>	

Submenu "Various".

- Select the field "Range alarm delay" and enter the time in minutes, after which the range alarm shall be triggered. Setting range: 15 min to 120 min. Confirm entry with **Confirm** icon.
- Select the field "Temperature range" and enter the desired value for the temperature range. Setting range: 2 °C to 10 °C. Confirm entry with **Confirm** icon.
- Select the field "Humidity range" and enter the desired value for the humidity range. Setting range: 5% r.h. to 20% r.h. Confirm entry with **Confirm** icon.

After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, **or** press the **Close** icon to exit the menu without taking over the entries.

If there is one or several actual values outside the tolerance range, information icons for the corresponding parameter are displayed (chap. 7.1).

If the condition persists, an alarm is triggered after the configured interval ("range alarm delay"). It is visually indicated in Normal display. If the alarm buzzer is activated (chap. 7.6) there is an audible alert. The alarm is shown in the list of active alarms (chap. 7.5).

7. Notification and alarm functions

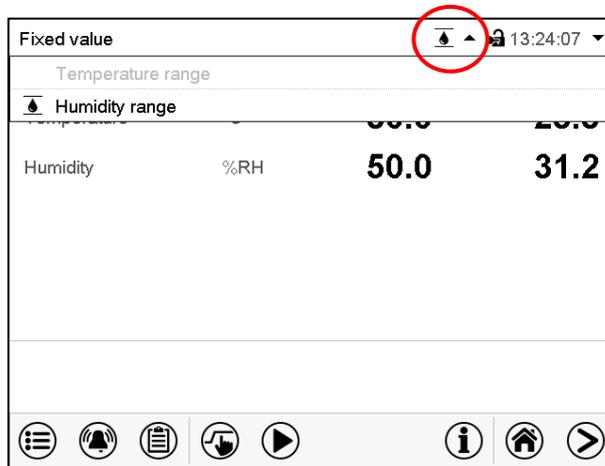
7.1 Notification symbols

Notifications are indicated by **information icons** displayed in the screen header in Normal display

An information icon serves as an indication of a certain condition: Actual temperature and/or humidity value outside the tolerance range.

If this condition persists, an alarm will be triggered after a configurable interval. As long as the condition persists, the information icon therefore continues to be displayed also in state of alarm. If during alarm the conditions ends, i.e., if during a tolerance range alarm the actual value returns to within the tolerance range, the information icon disappears, whereas the alarm will continue until manual acknowledgement.

Press the flash icon next to the information icon to access the corresponding text information.



Normal display showing the text information.

The currently valid information texts are highlighted in black.

Icon	Signification	Information
	“Temperature range”	The temperature value is outside the tolerance range
	“Humidity range”	The humidity value is outside the tolerance range

7.2 Notifications

Condition	Information icon	Text information	Start after condition occurred
The current actual temperature value is outside the tolerance range (chap. 6.3)		“Temperature range”	immediately
The current actual humidity value is outside the tolerance range (chap. 6.3)		“Humidity range”	immediately

Notifications are not shown in the event list.

7.3 Alarm messages

Condition	Alarm message	Start after condition occurred
The current actual temperature value is outside the tolerance range (chap. 6.3)	“Temperature range”	after configurable time
The current actual humidity value is outside the tolerance range (chap. 6.3)	“Humidity range”	after configurable time
Temperature sensor defective	e.g. “- - - -” or “<-<-<” or “>->->”	immediately

Alarm messages are displayed in the list of active alarms until acknowledging them. They are also shown in the event list.

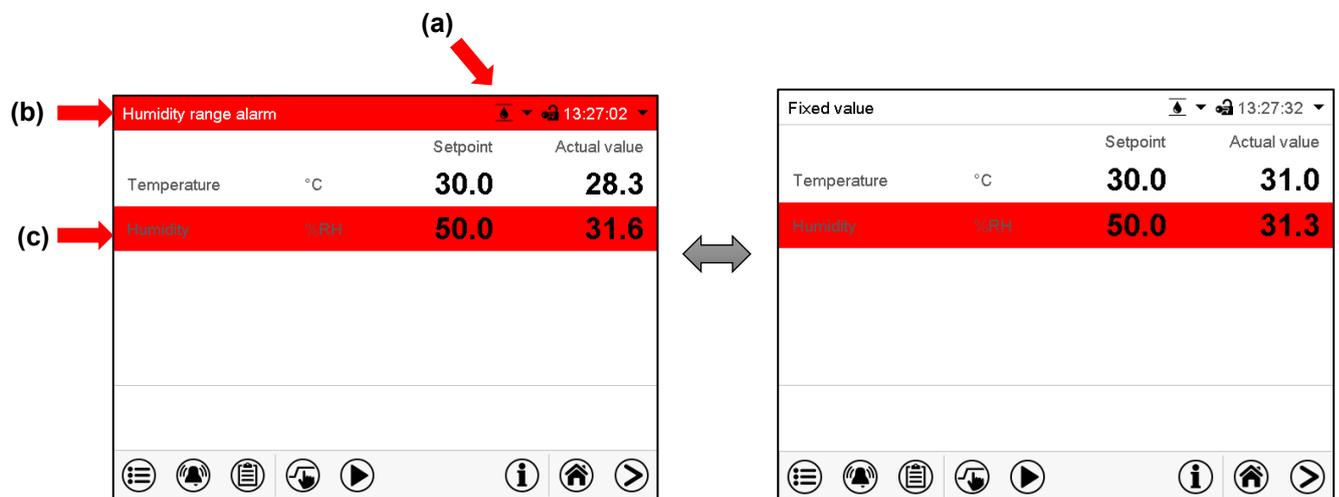
7.4 State of alarm



In order to enable BINDER Monitoring System to issue specific alarms, the set-points that prevail in the monitored climatic chamber or climate room and are set there on the respective controller must be entered on the controller of the Monitoring System.

Alarm messages are **visually** indicated:

- Range alarm: The affected parameter (temperature and/or humidity) is highlighted in red.
- Screen header flashes red, indicating the cause of the alarm.
- In addition, there is an **audible** alert (buzzer), if the buzzer is enabled (chap. 7.6).



Normal display in state of alarm (example: humidity range alarm)

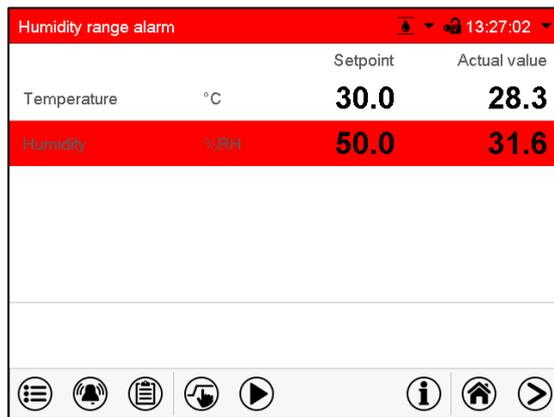
- (a) information icon in the screen header: Indication of a certain condition.
example: temperature range (notification), humidity range (alarm)
- (b) Screen header flashing in red color and showing the alarm message
example: humidity range alarm
- (c) Highlighting the parameter in case of range alarm
example: humidity
- (d) **Alarm** icon on the bottom of the screen: change to the list of active alarms and alarm acknowledgement

Press the **Alarm** icon

First, the temperature and humidity set-points must be entered (chap. 6.2) and then also the tolerance limits and the delay times (chap. 6.3).

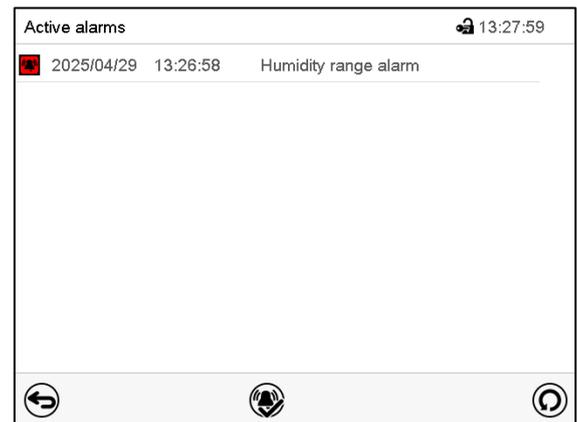
	<p>The alarm function will only become active if the measured values have been within the tolerance limits at least once.</p>
--	---

7.5 Resetting an alarm, list of active alarms



Normal display in state of alarm (example).

Press the **Alarm** icon



List of active alarms.

Press the **Reset alarm** icon.

Pressing the **Reset alarm** icon mutes the buzzer for all active alarms. The icon then disappears.

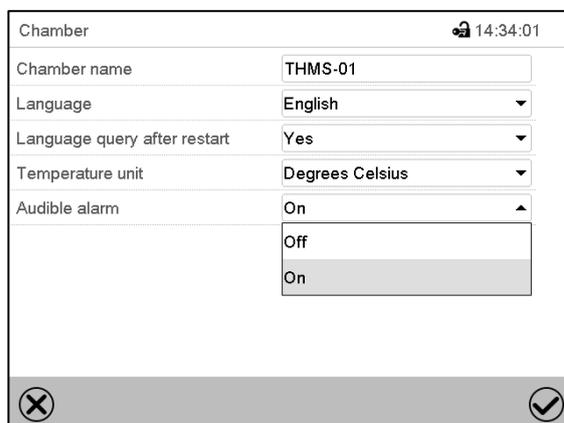
- Acknowledging while the alarm condition persists: Only the buzzer turns off. The visual alarm indication remains on the controller display. The alarm remains in the list of active alarms.

When the alarm condition has ended, the visual alarm indication is automatically cleared. The alarm is then no longer in the list of active alarms.

- Acknowledging after the alarm condition has ended: The buzzer and the visual alarm indication are reset together. The alarm is then no longer in the list of active alarms.

7.6 Activating / deactivating the audible alarm (alarm buzzer)

Path: [Main menu](#) > [Settings](#) > [Chamber](#)



“Chamber” submenu (example).

In the field “Audible alarm” select the desired setting “off” or “on” and press the **Confirm** icon.

8. User management

8.1 Authorization levels and password protection

The available functions depend on the current authorization level “Master”, “Service”, “Admin” or “User”.

The authorization levels are hierarchical: Every authorization includes all functions of the next lower level.

“Master” authorization level

- Highest authorization level, only for developers
- Extensive authorization for controller operation and configuration, outputs/inputs, alarm settings, parameter sets and operating ring display
- All passwords can be changed in the “log out” submenu (chap. 8.3).

“Service” authorization level

- Authorization level only for BINDER service
- Extensive authorization for controller operation and configuration, access to service data
- The passwords for “Service”, “Admin” and “User” authorization levels can be changed in the “log out” submenu (chap. 8.3).

“Admin” authorization level

- Expert authorization level, for the administrator
- Authorization for controller configuration and network settings and for operating those controller functions required for operating the device. Restricted access to service data.
- Password (factory setting): “2”.
- The passwords for “Admin” and “User” authorization levels can be changed in the “log out” submenu (chap. 8.3).

“User” authorization level

- Standard authorization level for the device operator
- Authorization for operating the controller functions required for operating the device.
- No authorization for controller configuration and network settings. The “Settings” and “Service” submenus of the main menu are not available.
- Password (factory setting): “1”
- The password for the “User” authorization level can be changed in the “log out” submenu (chap. 8.3).

As soon as a password has been assigned for an authorization level, the access to this level and the related controller functions are only available after log-in with the appropriate password.

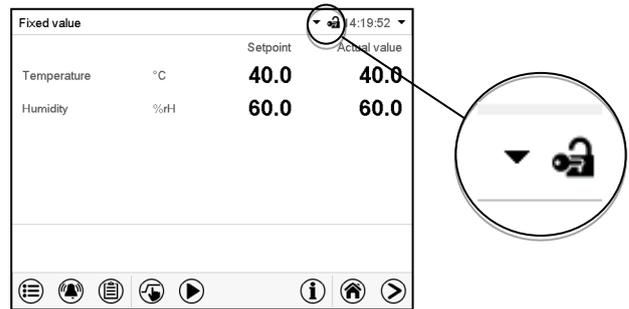
If for an authorization level no password is assigned, the related controller functions of this level are available for every user without login.

If passwords have been assigned for all authorization levels, access to the controller functions is locked without login.

Operation after user login

At user login, the authorization level is selected and confirmed by entering the respective password.

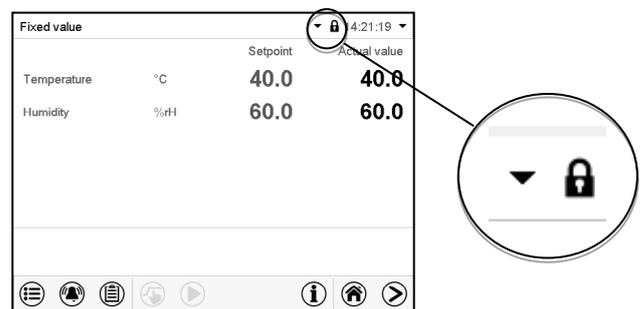
Following user login, controller operation is available, recognizable by the open-lock icon in the header. The available controller functions correspond to the user's authorization level.



Password protection activated for all levels: operation without user login is locked

If passwords have been assigned for all authorization levels, the controller is locked without registration of a user.

As long as no user is registered, controller operation is locked, recognizable at the closed-lock icon in the header. This requires that the user management has been activated by the assignment of passwords for the individual authorization levels.



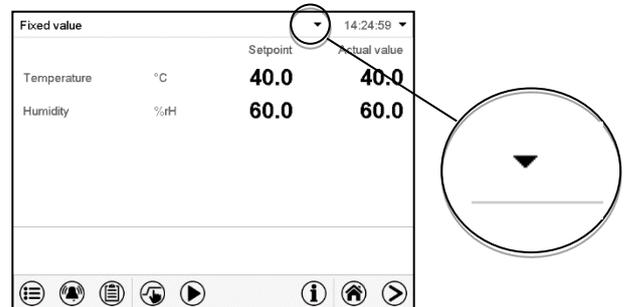
Password protection for at least one level deactivated: operation without user login is possible

If passwords have not been assigned for all authorization levels, after turning on the device there are those controller functions available, which correspond to the highest authorization level without password protection.

No lock icon is shown in the display header.

User login is neither required nor possible.

To activate the password protection and user login, perform new password assignment (chap. 8.5.3).



Information window

To check the authorization level of the user currently logged-in, select in Normal display the arrow far right in the display header.

Fixed value		Setpoint	Actual value
Temperature	°C	40.0	40.0

The information window shows date and time, the controller's free memory space and under "Authorization" the authorization level of the current user.

If passwords have been assigned for all authorization levels, a user without login (password entry) has no authorization. There are only viewing functions available.

Fixed value		14:32:10	
Tuesday, 2016/05/24		Free storage: 98%	
Authorization:			

Display when all authorization levels are password protected and no user has logged in:

No authorization level is displayed.

If passwords have been assigned only for some of the authorization levels, a user without login (password entry) has access to the functions of the highest authorization level without password protection.

Fixed value		14:29:26	
Tuesday, 2016/05/24		Free storage: 98%	
Authorization: Admin			

Display when only some of the authorization levels are password protected (example: no protection for the "User" and "Admin" levels) and no user has logged in:

The user's effective authorization (due to lack of password protection) is shown.

Example: user with "Admin" authorization.

If passwords have been assigned for some or all of the authorization levels, user login (password entry) provides the authorization for the corresponding password-protected level.

Fixed value		14:29:26	
Tuesday, 2016/05/24		Free storage: 98%	
Authorization: Admin			

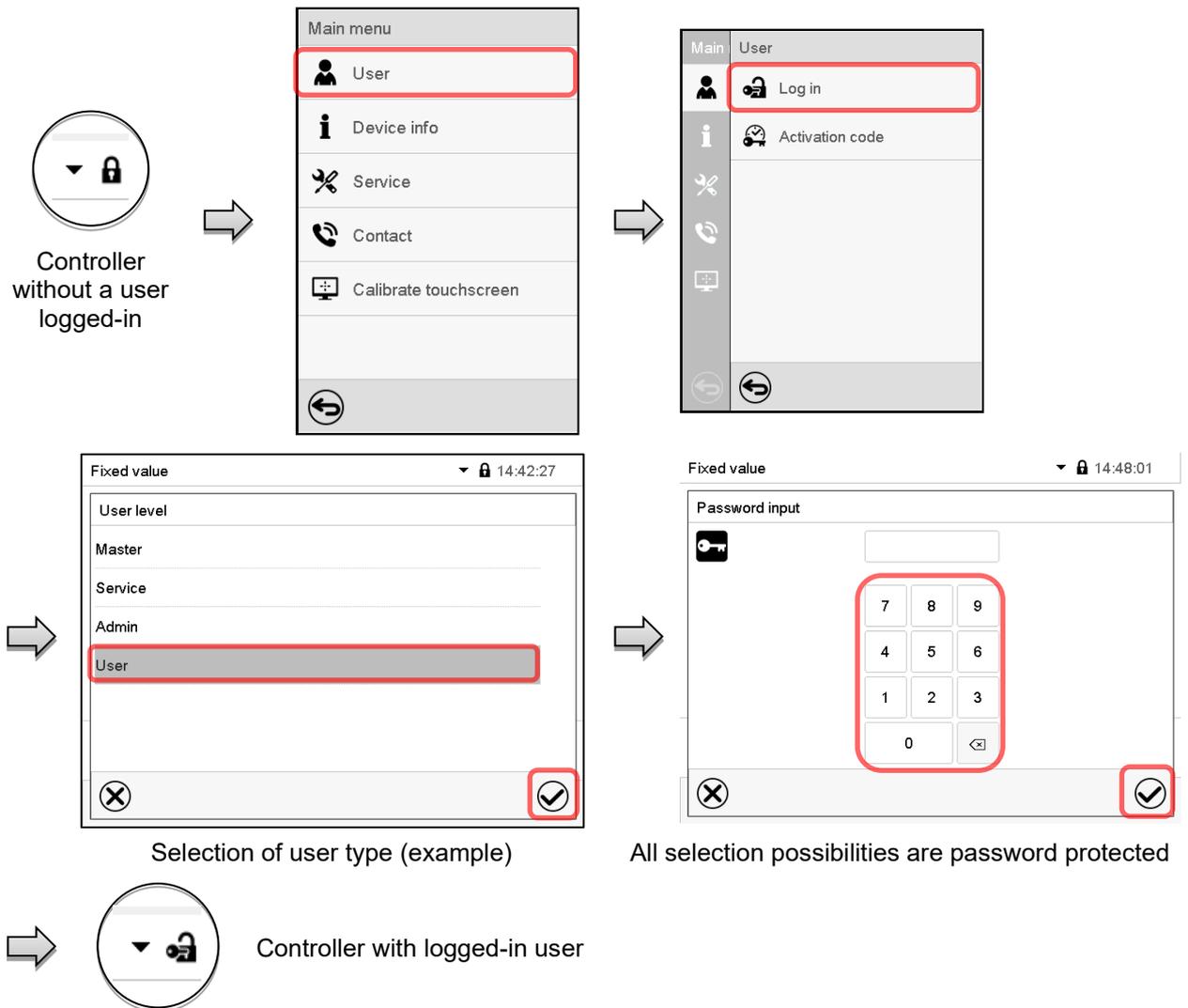
Display when at least some of the authorization levels are password protected and a user has logged in.

The user's authorization (by password entry) is shown.

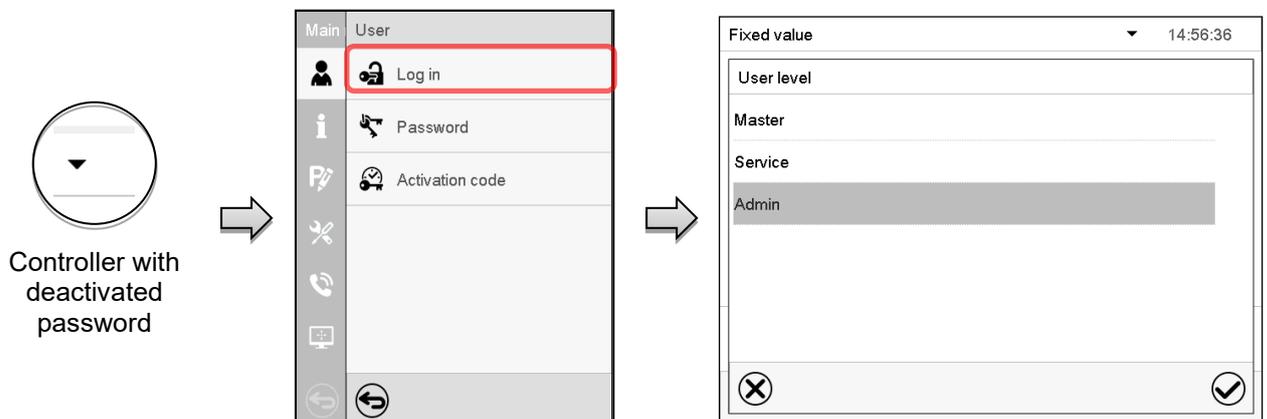
Example: user with "Admin" authorization.

8.2 Log in

Path: **Main menu > User > Log in**



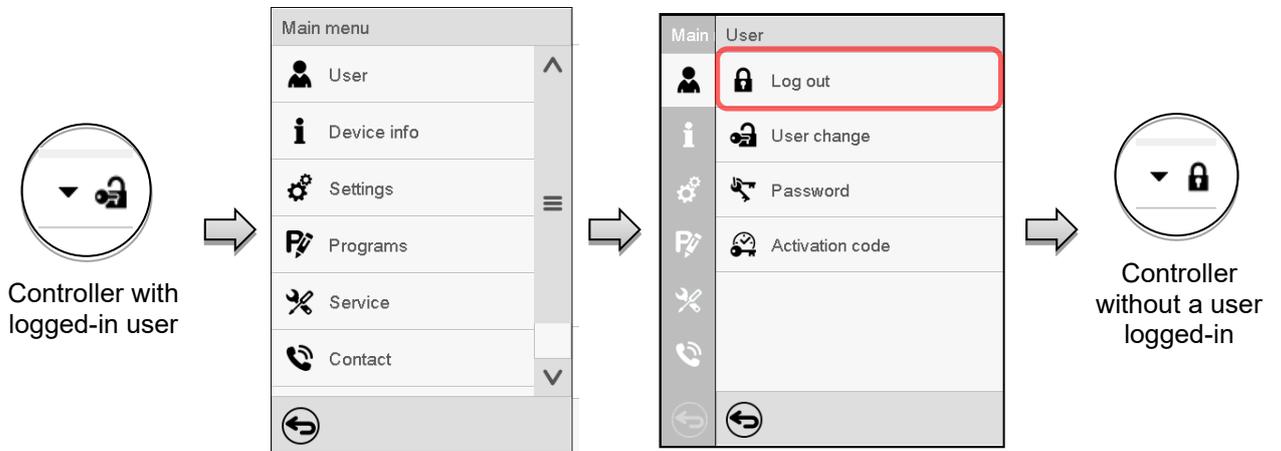
After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, or press the **Close** icon to exit the menu without taking over the entries.



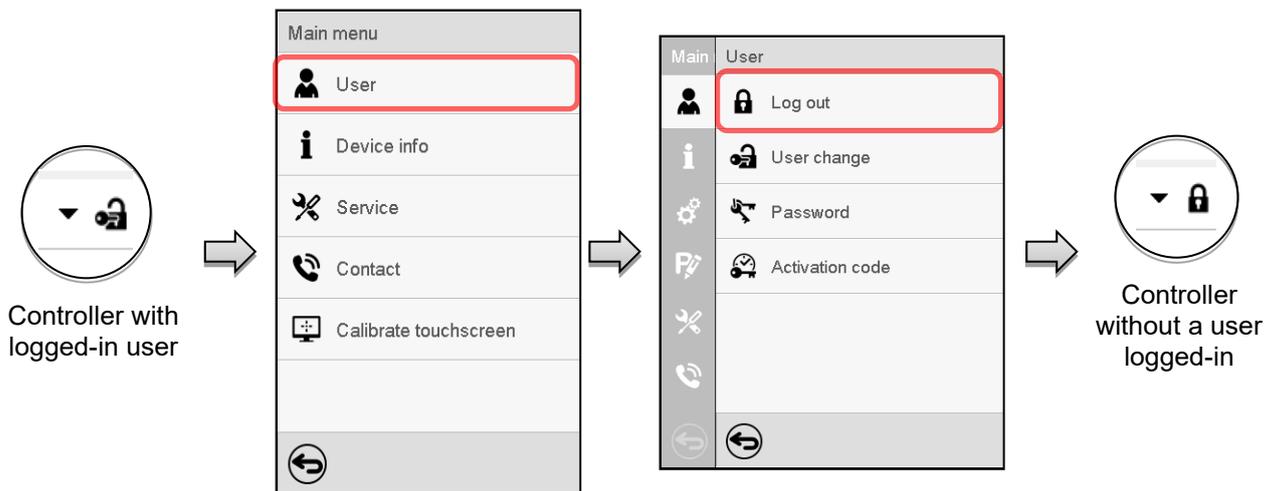
8.3 Log out

Path: [Main menu](#) > [User](#) > [Log out](#)

User logoff with “Admin” authorization



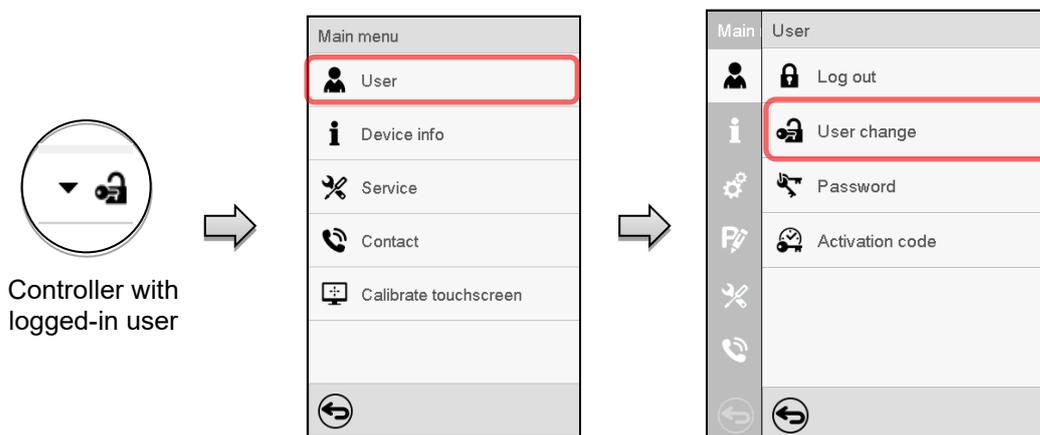
User logoff with “User” authorization

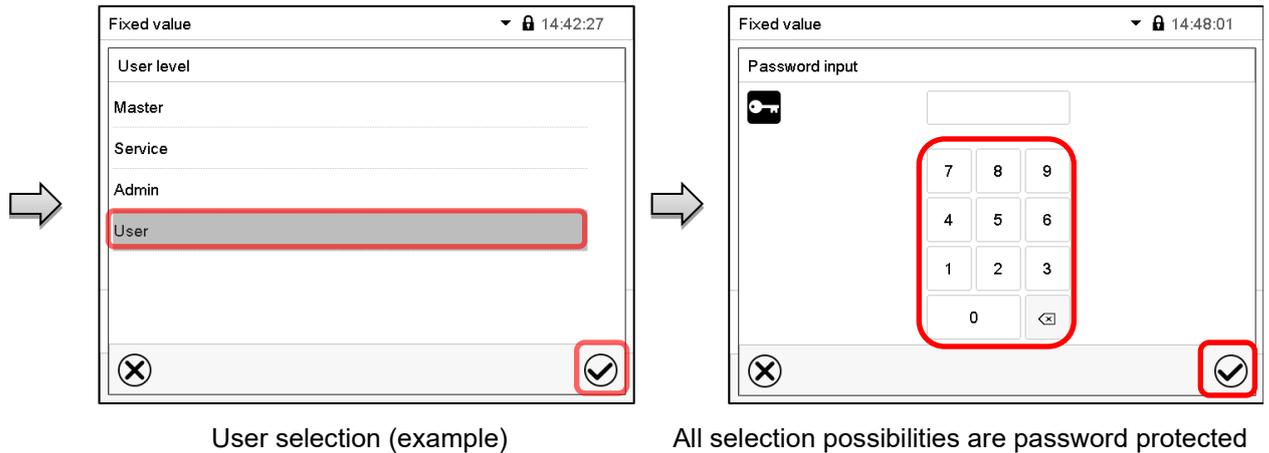


8.4 User change

If the password function has been deactivated (chap.8.5.2) this function is not available.

Path: [Main menu](#) > [User](#) > [User change](#)





8.5 Password assignment and password change

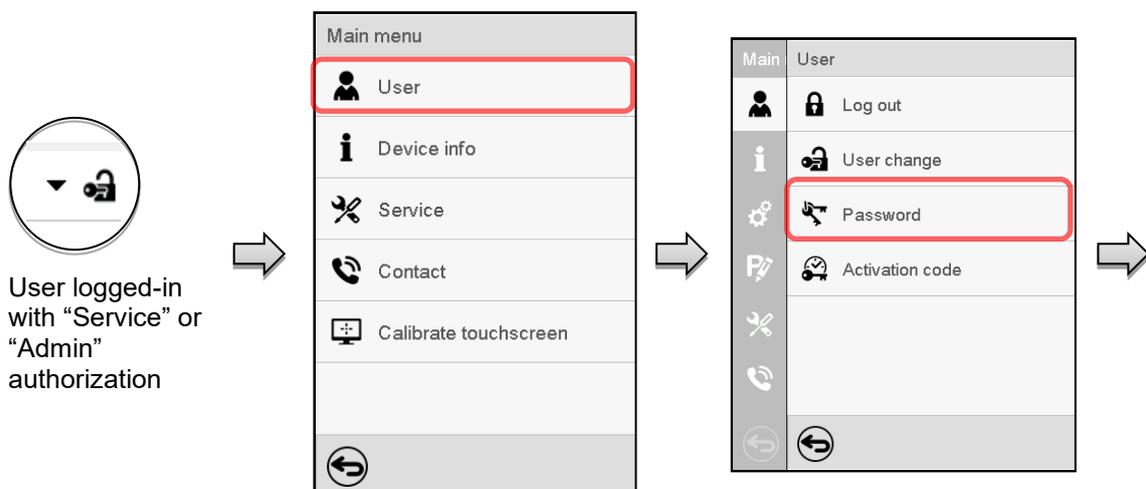
This function is not available for a user logged-in with “User” authorization.

8.5.1 Password change

A logged-in user can change the passwords of his current level and of the next lower level(s).

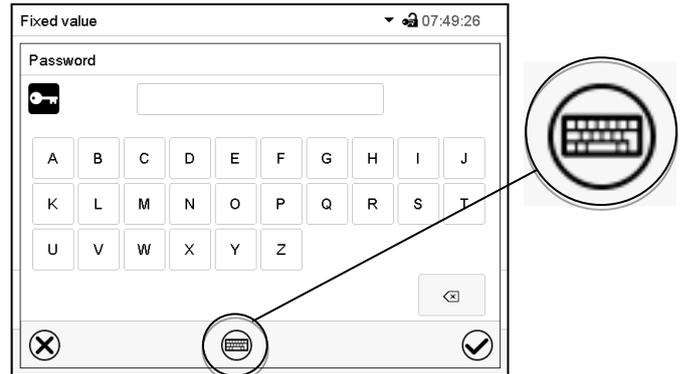
Example: A user with “Admin” authorization can change the passwords for the “Admin” and “User” authorization levels.

Path: [Main menu](#) > [User](#) > [Password](#)



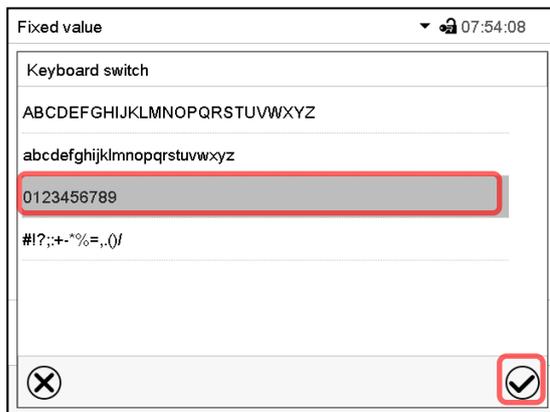


Selection of the authorization level
(example: view with "Admin" authorization)

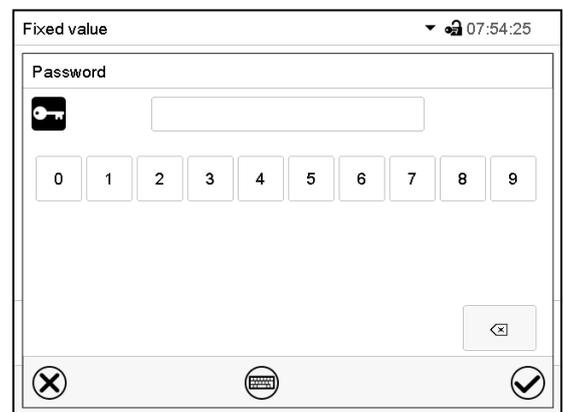


Enter desired password. If desired, press the **Change keyboard** icon to access other entry windows.

In the "Keyboard switch" window you can select different keyboards to enter uppercase and lowercase letters, digits, and special characters. All types of characters can be combined within one single password.

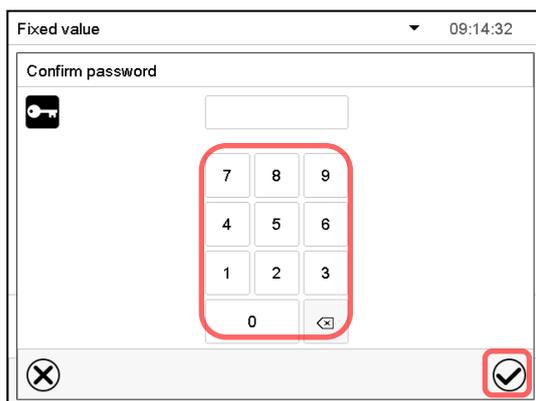


Example: access the digit entry window



Entry of digits

To confirm the entry, press the **Confirm** icon.



Repeat the password entry for confirmation (sample picture). For each character of the password, the required keyboard appears automatically.

Then press the **Confirm** icon.

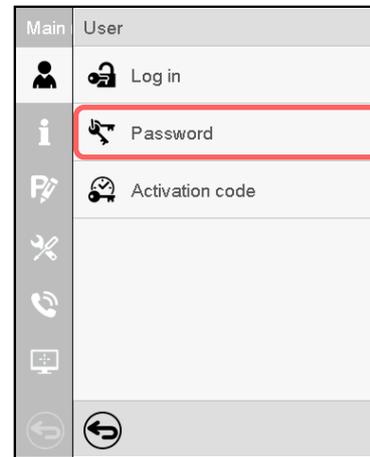
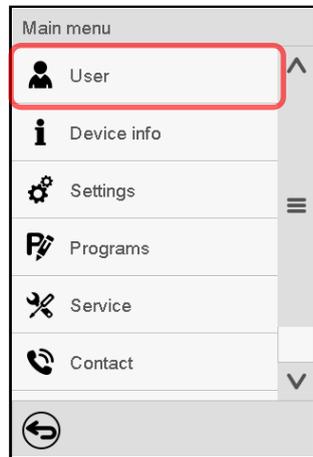
8.5.2 Deleting the password for an individual authorization level

A user logged-in with “Service” or “Admin” authorization can delete the passwords of his current level and of the next lower level(s). To do this no password is entered during a password change.

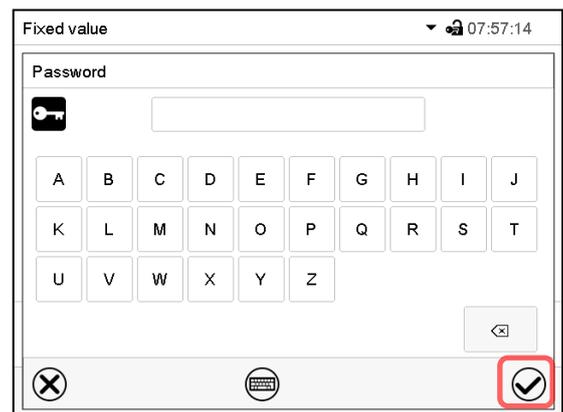
Path: **Main menu > User > Password**



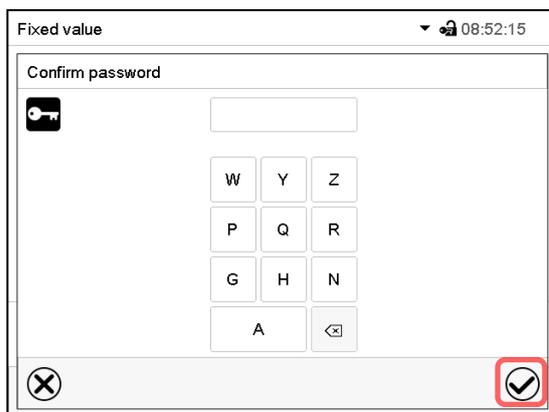
Controller with logged-in user (e.g. with “Admin” authorization)



Select the authorization level for which the password shall be deleted.



Do NOT enter anything in the “Password” screen. Press the **Confirm** icon.



Do NOT enter anything in the “Confirm password” screen. Press the **Confirm** icon.

The password is deleted.

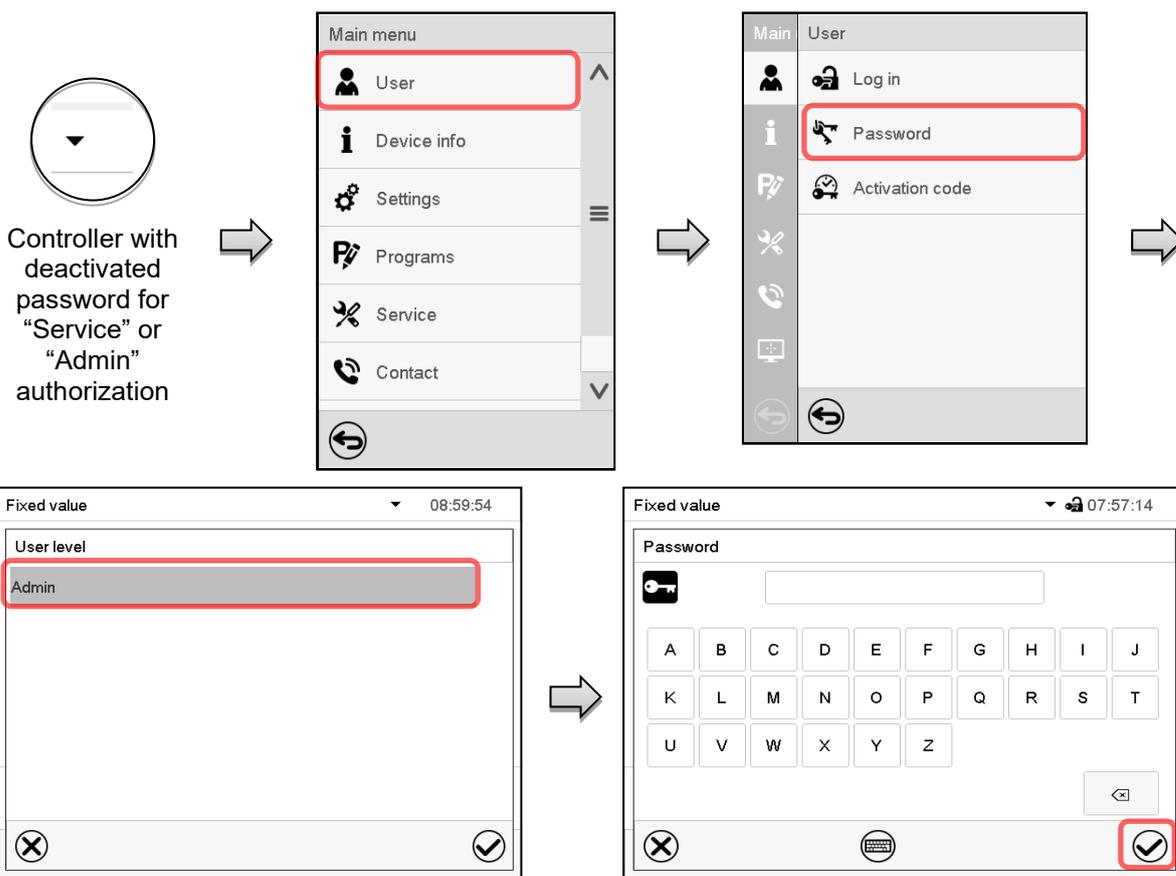
8.5.3 New password assignment for “service” or “admin” authorization level when the password function was deactivated

If the password protection for an authorization level has been deactivated, i.e., no password is assigned, no login for this level is possible. Therefore, access to this authorization level is available without login.

If the password for the “Service” or “Admin” authorization has been deleted (chap. 8.5.2), a new password can be assigned for the current level and the next lower level(s) without user login.

Example: The password for the “Admin” authorization level was deleted, therefore every user without login has full access to the functions of the “Admin” authorization level. If access to this level shall become password protected again, the user can assign a new password for the “Admin” authorization level with the “Password” function.

Path: [Main menu](#) > [User](#) > [Password](#)



Select the authorization level, for which you want to assign a password.

(Example: “Admin” authorization)

Enter the desired password. If desired, press the **Change keyboard** icon to access other entry windows.

To confirm the entry, press the **Confirm** icon.

Repeat the password entry for confirmation. For each character of the password, the required keyboard appears automatically. Then press the **Confirm** icon.

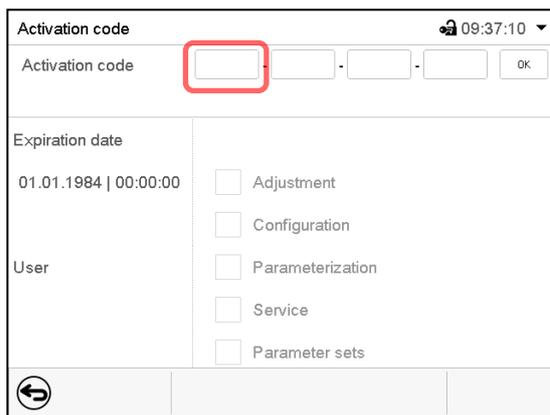
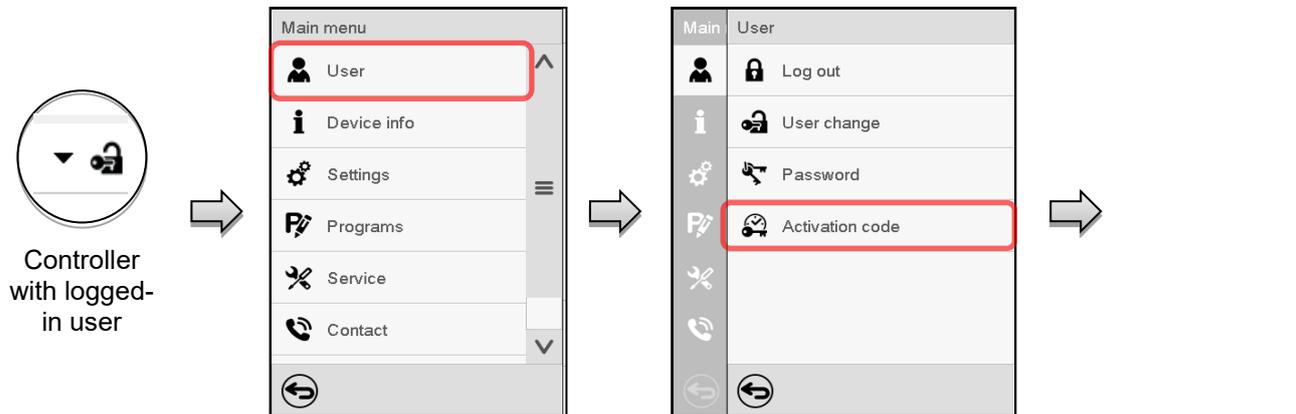
8.6 Activation code

Certain functions of the controller can be unlocked with a previously generated activation code.

The activation code enables access to functions available only in the “Service” authorization level by users without a “Service” authorization. Such functions include e.g., adjustment or extended configurations.

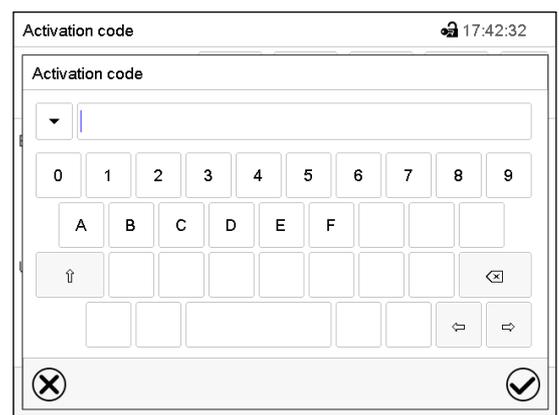
The activation code is available in authorization levels.

Path: **Main menu > User > Activation code**



Activation code menu.

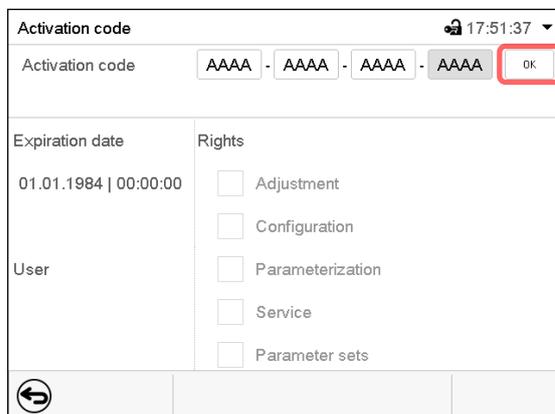
Select the first of the four entry fields.



Activation code entry window.

Enter the first four characters of the activation code and press the **Confirm** icon.

Select the next of the four entry fields and proceed accordingly until the entire code has been entered.

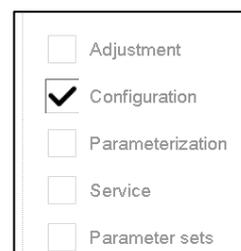


“Activation code” menu with entered code (sample view).

Press **OK** to take over the entry

The available functions are indicated by marked checkboxes.

Example: Extended configurations available.



Under “Expiration date” the date of expiry of the code is displayed.

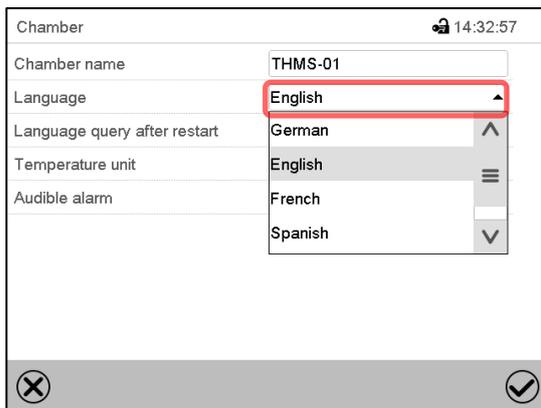
9. General controller settings

Most of the general settings can be accessed in the “Settings” submenu, which is available for users with “Service” or “Admin” authorization level. It serves to enter date and time, select the language for the controller menus and the desired temperature unit and to configure the controller’s communication functions.

9.1 Selecting the controller’s menu language

The MB2 program controller communicates by a menu guide using real words in German, English, French, Spanish, and Italian.

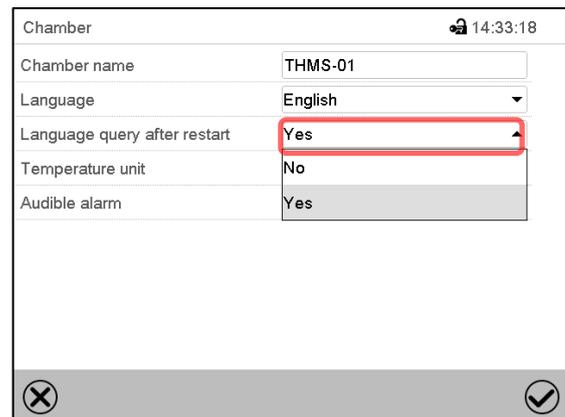
Path: **Main menu > Settings > Chamber**



The screenshot shows the 'Chamber' submenu with the following settings: Chamber name: THMS-01; Language: English (dropdown menu open, showing German, English, French, Spanish); Language query after restart: German; Temperature unit: English; Audible alarm: French. A red box highlights the 'Language' dropdown menu.

“Chamber” submenu.

Select the desired language.



The screenshot shows the 'Chamber' submenu with the following settings: Chamber name: THMS-01; Language: English; Language query after restart: Yes (dropdown menu open, showing Yes, No); Temperature unit: No; Audible alarm: Yes. A red box highlights the 'Language query after restart' dropdown menu.

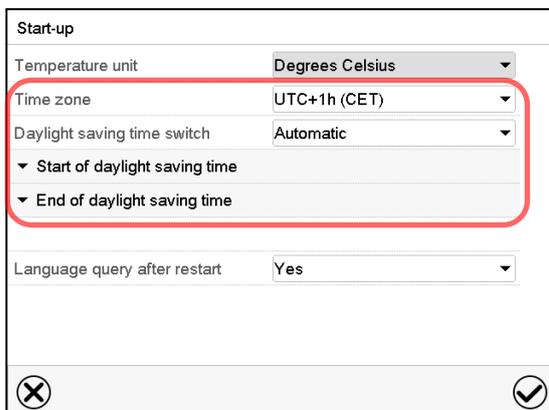
“Chamber” submenu.

Select if there shall be a language query after restarting the device and press the **Confirm** icon.

Return to Normal display with the **Back** icon to take over the entries.

9.2 Setting date and time

Following start-up of the device after language selection:

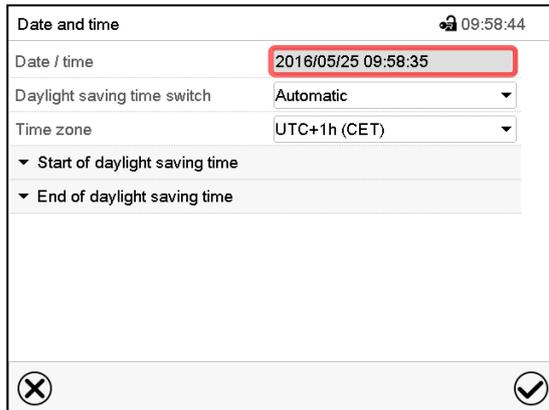


The screenshot shows the 'Start-up' submenu with the following settings: Temperature unit: Degrees Celsius; Time zone: UTC+1h (CET) (dropdown menu open); Daylight saving time switch: Automatic (dropdown menu open); Start of daylight saving time: (dropdown menu open); End of daylight saving time: (dropdown menu open); Language query after restart: Yes. A red box highlights the 'Time zone' and 'Daylight saving time switch' settings.

Select the time zone and configure the daylight-saving time switch.

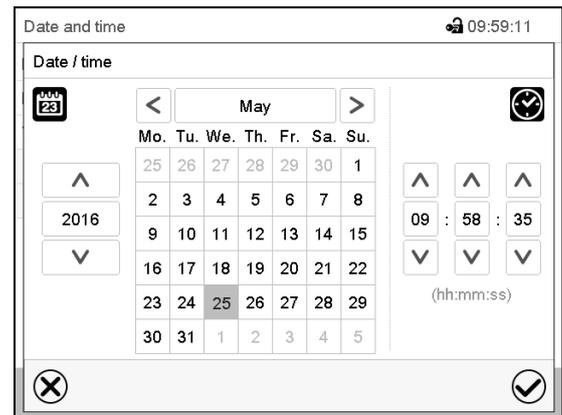
Or later:

Path: **Main menu > Settings > Date and time**



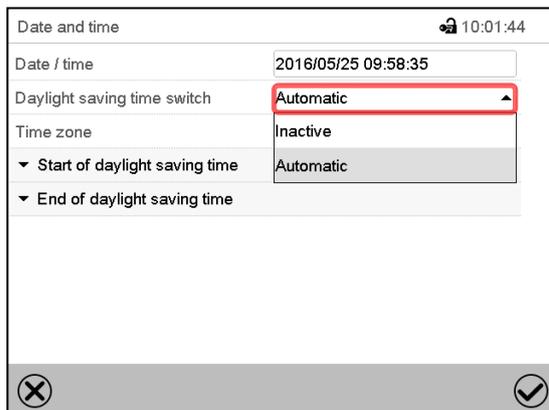
“Date and time” submenu.

Select the field “Date / time”.



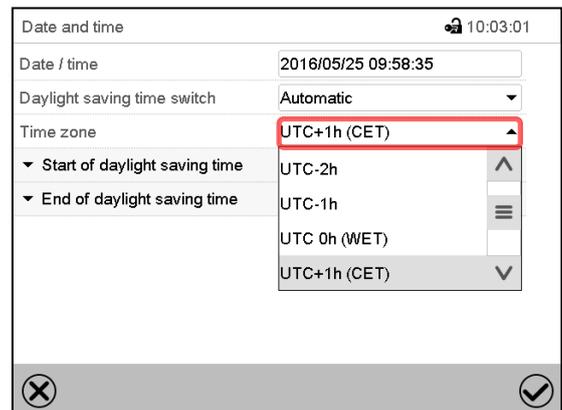
“Date / time” entry menu.

Enter date and time and press the **Confirm** icon.



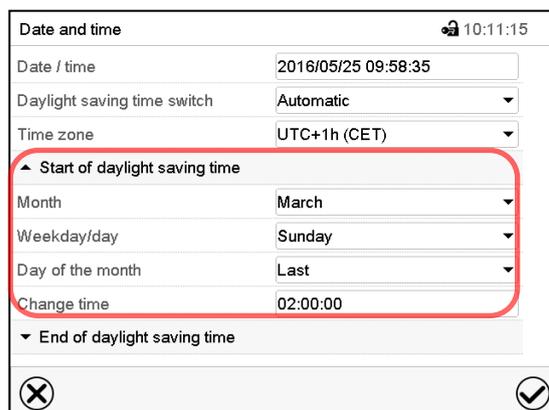
“Date and time” submenu.

In the field “Daylight saving time switch” select the desired setting “Automatic” or “Inactive”.



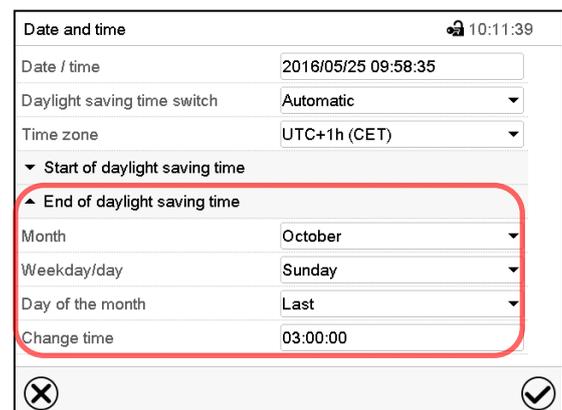
“Date and time” submenu.

Select the desired time zone and press the **Confirm** icon.



“Date and time” submenu.

Select the desired start of the daylight-saving time.



“Date and time” submenu.

Select the desired end of the daylight-saving time and press the **Confirm** icon.

After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, **or** press the **Close** icon to exit the menu without taking over the entries.

9.3 Selecting the temperature unit

Following start-up of the device:

Start-up	
Temperature unit	Degrees Celsius
Time zone	UTC+1h (CET)
Daylight saving time switch	Automatic
Start of daylight saving time	
End of daylight saving time	
Language query after restart	Yes

Or later:

Path: [Main menu](#) > [Settings](#) > [Chamber](#)

Chamber	
Chamber name	THMS-01
Language	English
Language query after restart	Yes
Temperature unit	Degrees Celsius
Audible alarm	Degrees Celsius
	Degrees Fahrenheit

Select the desired temperature unit and press the **Confirm** icon.

Change of the temperature unit between °C and °F.

If the unit is changed, all values are converted accordingly

	C = degree Celsius	0 °C = 31°F	Conversion: [value in °F] = [value in °C] * 1,8 + 32
	F = degree Fahrenheit	100 °C = 212°F	

9.4 Display configuration

9.4.1 Adapting the display parameters

This function serves to configure parameters like display brightness and operating times.

Path: [Main menu](#) > [Settings](#) > [Display](#) > [Display](#)

Display	
Brightness	100
Wait time for screen saver	300 s
Activate continuous operation	Yes
Begin continuous operation	06:00:00
End continuous operation	20:00:00

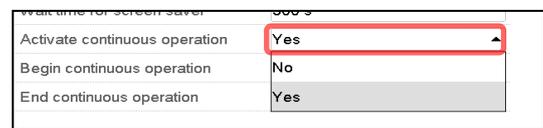
“Display” submenu.

- Select the field “Brightness”.
- Move the grey slide to the left or right to define the brightness of the display
- left = darker (minimum value: 0)
 - right = brighter (maximum value: 100)
- Press the **Confirm** icon.



- Select the field “Wait time for screen saver” and enter the desired waiting time for the screen saver in seconds. Setting range: 10 sec up to 32767 sec. During the waiting time the display is off. Confirm entry with **Confirm** icon.

- In the field “Activate continuous operation” select the desired setting “Yes” or “No”.



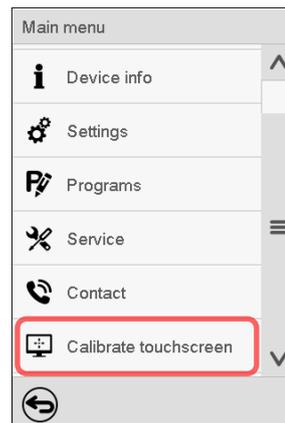
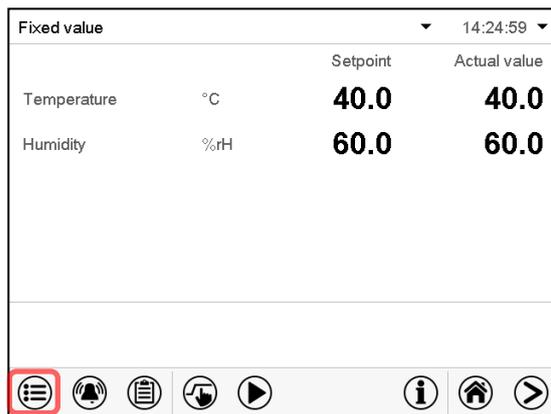
- Select the field “Begin continuous operation” (possible only if continuous operation is activated) and enter the time with the arrow keys. Confirm entry with **Confirm** icon.
- Select the field “End continuous operation” (only possible if continuous operation is activated) and enter the time with the arrow keys. Confirm entry with **Confirm** icon.

After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, **or** press the **Close** icon to exit the menu without taking over the entries.

9.4.2 Touchscreen calibration

This function serves to optimize the display for the user’s individual angular perspective.

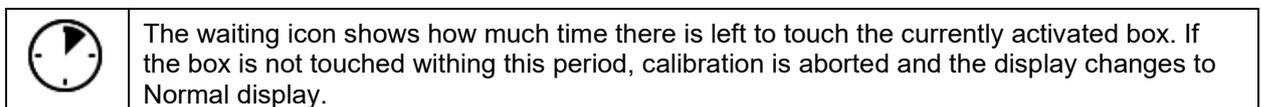
Path: [Main menu](#) > [Calibrate touchscreen](#)



Normal display.

Select “Calibrate touchscreen” and follow the instructions on the display.

You need to touch all four corners of the touchscreen to calibrate it. Appropriate boxes appear successively in each corner.



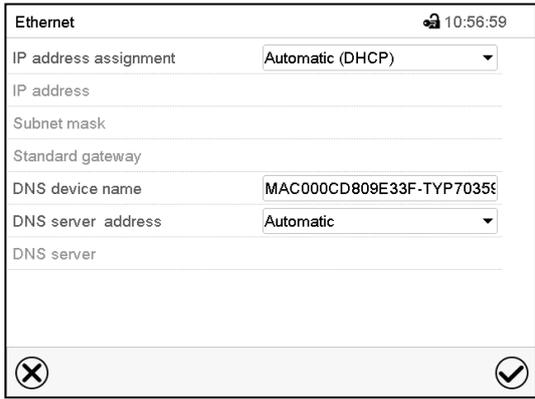
After completing the calibration, i.e., touching all four boxes, the display changes to Normal display.

9.5 Network and communication

For these settings at least the “Admin” authorization level is required.

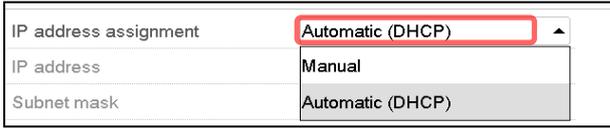
9.5.1 Ethernet configuration

Path: [Main menu](#) > [Settings](#) > [Ethernet](#)

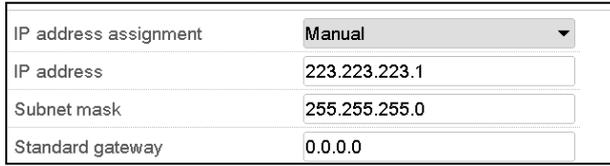


“Ethernet” submenu.

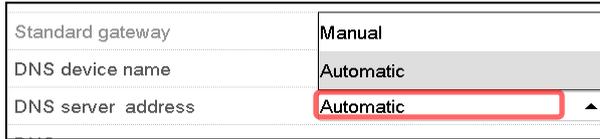
- In the field “IP address assignment” select the desired setting “Automatic (DHCP)” or “Manual”.



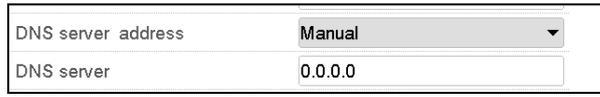
With selection “Manual” you can enter the IP-address, the subnet mask and the standard gateway manually.



- Select “DNS device name” and enter the DNS device name. Confirm entry with **Confirm** icon.
- In the field “DNS server address” select the desired setting “Automatic” or “Manual”.



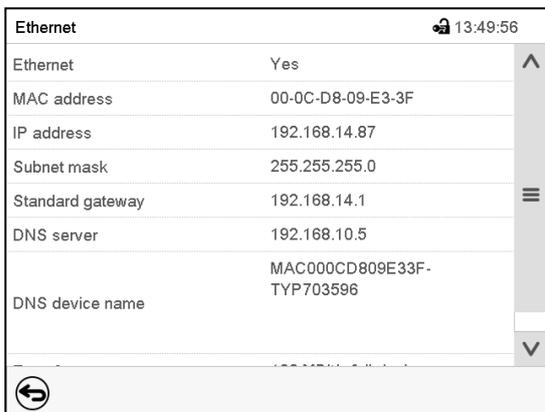
With selection “Manual” you can enter the DNS server address manually.



After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, **or** press the **Close** icon to exit the menu without taking over the entries.

9.5.2 Display of MAC address

Path: [Main menu](#) > [Device info](#) > [Ethernet](#)



Ethernet		🔒 13:49:56
Ethernet	Yes	^
MAC address	00-0C-D8-09-E3-3F	
IP address	192.168.14.87	
Subnet mask	255.255.255.0	
Standard gateway	192.168.14.1	☰
DNS server	192.168.10.5	
DNS device name	MAC000CD809E33F-TYP703596	∨

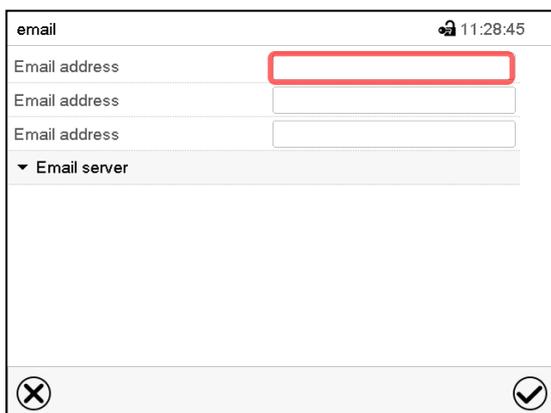
“Ethernet” submenu (example).

9.5.3 E-mail

As soon as an alarm was triggered, an e-mail is sent to the configured e-mail address.

Path: [Main menu](#) > [Settings](#) > [Email](#)

E-mail address entry:

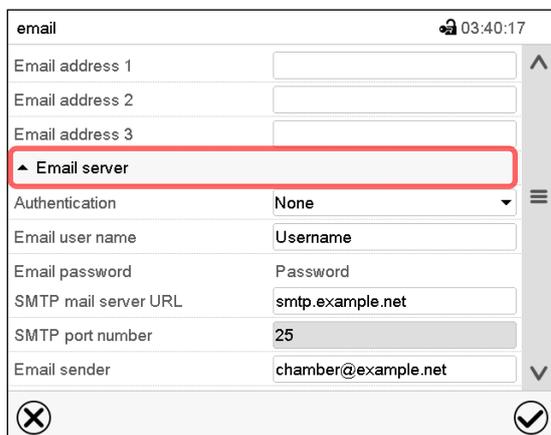


email		🔒 11:28:45
Email address	<input type="text"/>	
Email address	<input type="text"/>	
Email address	<input type="text"/>	
▼ Email server		

“Email” submenu.

Select the desired e-mail address field and enter the e-mail address. You can use the **Keyboard change** icon for entry. Confirm entry with **Confirm** icon.

E-mail server settings:



email		🔒 03:40:17
Email address 1	<input type="text"/>	^
Email address 2	<input type="text"/>	
Email address 3	<input type="text"/>	
▲ Email server		☰
Authentication	None	∨
Email user name	Username	
Email password	Password	
SMTP mail server URL	smtp.example.net	
SMTP port number	25	
Email sender	chamber@example.net	∨

“Email” submenu.

Select the field “Email server” to access the settings

- In the field “Authentication” select the desired setting “None” or “SMTP auth”.

With the setting “SMTP auth”, you can enter a password under “Email password”.

Authentication	None
Email user name	None
Email password	SMTP auth
SMTP mail server URL	192.168.10.45

- Select the field “Email user name” and enter the desired user name. Confirm entry with **Confirm** icon.
- Select the field “SMTP mail server URL” and enter the SMPT mail server URL. Confirm entry with **Confirm** icon.
- Select the field “SMTP port number” and enter the desired port number. Standard setting: “25”. Confirm entry with **Confirm** icon.
- Select the field “Email sender” and enter the desired Email sender. Confirm entry with **Confirm** icon.

After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, **or** press the **Close** icon to exit the menu without taking over the entries.

9.6 USB menu: Data transfer via USB interface

The USB port is located in the instrument box.

When you insert a USB-stick, the “USB” menu opens.



The USB stick must be formatted with FAT32 and have at least 8GB of memory.

Depending on the user’s authorization level, different functions (highlighted in black) are available for the logged-in user.

USB menu	
Log-out USB stick	▲
Export new chart recorder data (*.DAT)	
Export all chart recorder data (*.DAT)	
Export all chart recorder data (*.csv)	☰
Import configuration and programs	
Export configuration and programs	
Import programs	
Export service data	
Software update	▼
	✔

Available functions
with “User” authorization level

USB menu	
Log-out USB stick	▲
Export new chart recorder data (*.DAT)	
Export all chart recorder data (*.DAT)	
Export all chart recorder data (*.csv)	☰
Import configuration and programs	
Export configuration and programs	☰
Import programs	
Export service data	
Software update	▼
	✔

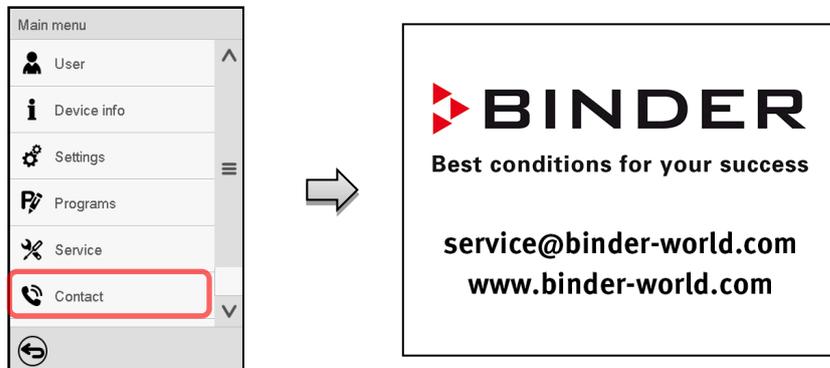
Available functions
with “Admin” authorization level

Function	Explanation
Log-out USB stick	Log-out USB stick bevor pulling it
Export new chart recorder data (*.DAT)	Export chart recorder data, which have been added since last export, in .dat format
Export all chart recorder data (*.DAT)	Export all chart recorder data in .dat format
Export all chart recorder data (*.csv)	Export all chart recorder data in .csv format
Import configuration and programs	Import configuration and timer / time / week programs
Export configuration and programs	Export configuration and timer / time / week programs
Import programs	Import timer / time / week programs
Export service data	Export service data
Software update	Controller firmware update

10. General information

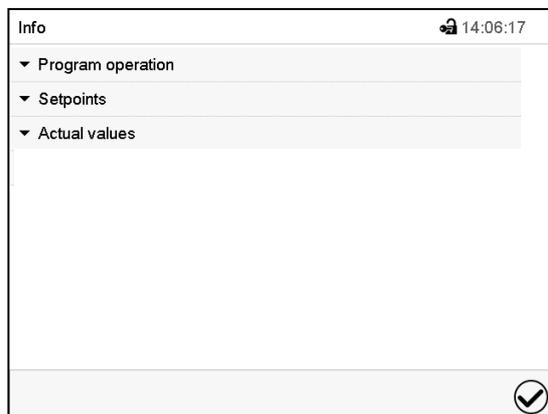
10.1 Service contact page

Path: [Main menu](#) > [Contact](#)



10.2 Current operating parameters

 Press the **Information** icon to access the “Info” menu from Normal display.



“Info” menu.

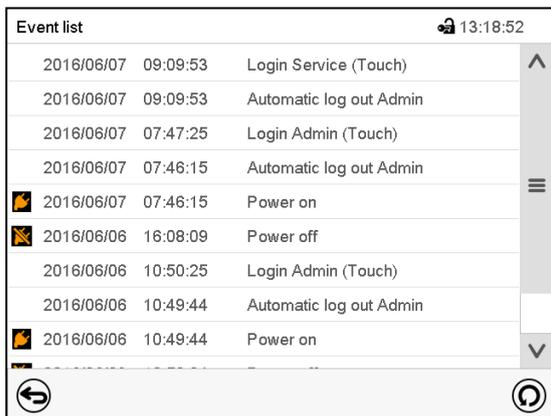
Select the desired information.

- Select “Program operation” to see information on a currently running program.
- Select “Setpoints” to see information on the entered setpoints and operation lines.
- Select “Actual values” to see information on the current actual values.
- Select “Safety controller” to see information on the safety controller status.

10.3 Event list

The “Event list” displays status information and errors of the current day. It enables to view the last 100 events or defective conditions of the device.

 Press the **Event list** icon to access the event list from Normal display.



Event list

 Press the **Update** icon to update the event list.

 **Attention:** Following a modification of the language setting (chap. 9.1) or the storage interval of the chart recorder (chap. 11.2) the Event list is cleared.

10.4 Technical device information

Path: [Main menu](#) > [Device info](#)

<table border="1"> <tr> <td>Main</td> <td>Device info</td> </tr> <tr> <td></td> <td> General</td> </tr> <tr> <td></td> <td>v1.x Versions</td> </tr> <tr> <td></td> <td> In-/Outputs</td> </tr> <tr> <td></td> <td> Modbus inputs</td> </tr> <tr> <td></td> <td> Ethernet</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>	Main	Device info		 General		v1.x Versions		 In-/Outputs		 Modbus inputs		 Ethernet					Device name and setup	
	Main	Device info																
		 General																
		v1.x Versions																
		 In-/Outputs																
		 Modbus inputs																
		 Ethernet																
																		
																		
Versions of CPU, I/O module and safety controller	for BINDER Service																	
Information on digital and analog inputs and outputs and phase angle outputs	for BINDER Service																	
Information on modbus analog and digital inputs	for BINDER Service																	
Information on Ethernet connection, MAC address display	chap. 9.5.2																	
Back to main menu																		

11. Chart recorder display

This view offers graphic representation of the measurement course. Data representation imitates a chart recorder and allows recalling any set of measured data at any point of time taken from the recorded period.

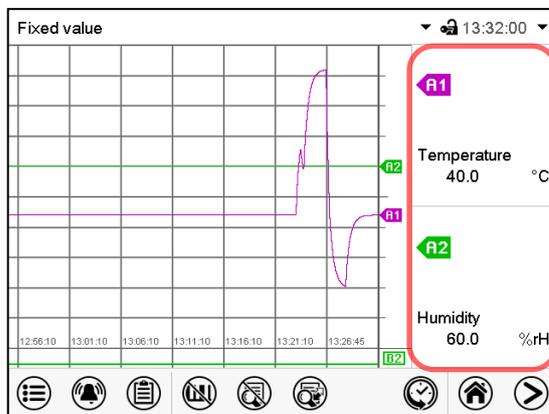
11.1 Views

	Press the Change view icon to access the pen recorder display.
--	---

11.1.1 Show and hide legend

	Show legend		Hide legend
--	--------------------	--	--------------------

Press the **Show legend** icon to display the legend on the right side of the display

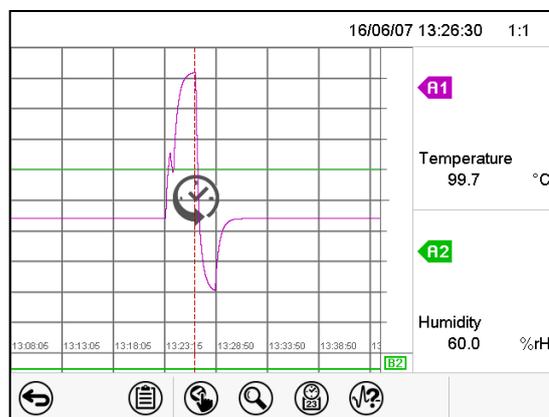


Legend shown on the right side of the display

11.1.2 History display

	History display
--	------------------------

Press the **History display** icon to change to the history display.



History display.

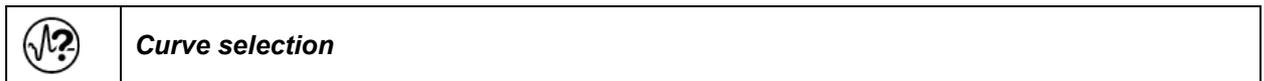
The chart recorder is paused. Data recording continues in the background.

Move the central red line by tapping and holding to the desired position.

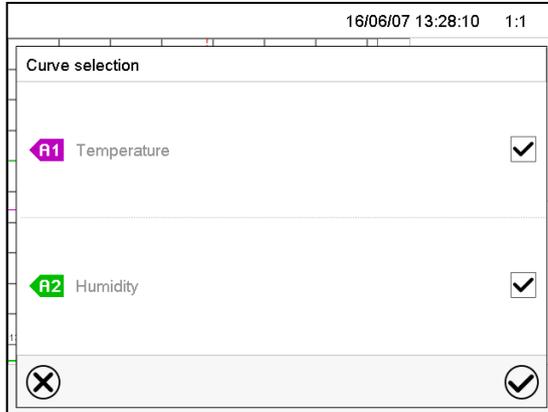
The legend at the right side shows the values of the current line position.

Then further icons appear:

History display: Curve selection



Press the **Curve selection** icon to access the “Curve selection” submenu.



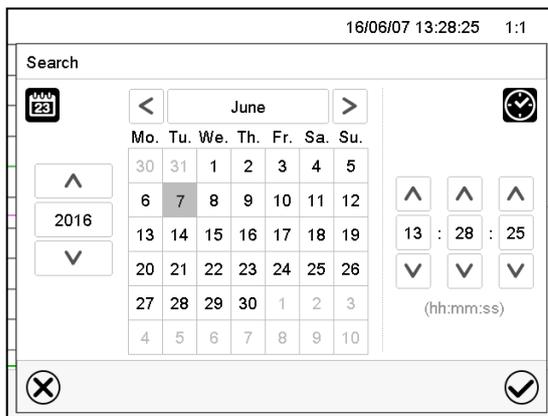
“Curve selection” submenu.

Select the curves to be displayed by checking the checkbox of the corresponding parameter. Press the **Confirm** icon

History display: Search the required instant



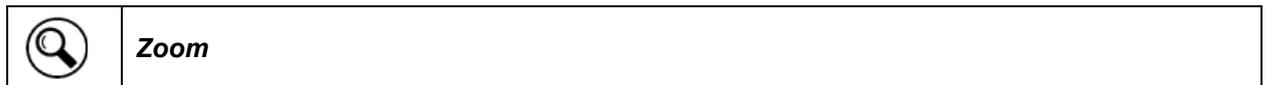
Press the **Search** icon to access the “Search” submenu.



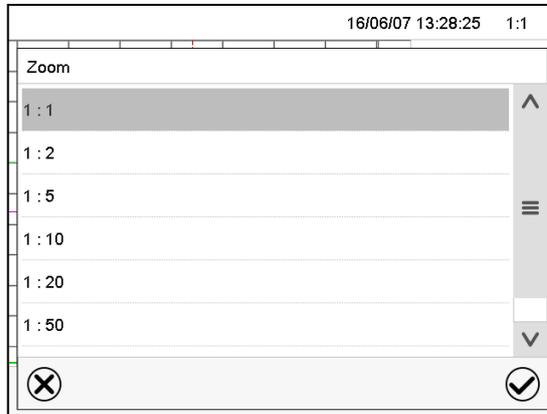
“Search” submenu.

Select the required instant by entering its date and time and press the **Confirm** icon

History display: Zoom function



Press the **Zoom** icon to access the "Zoom" submenu.



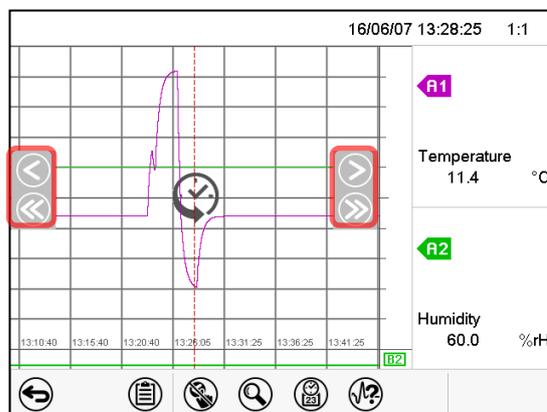
"Zoom" submenu.

Select the zoom factor and press the **Confirm** icon

History display: Show and hide scroll buttons to scroll to an instant



Press the **Show scroll buttons** icon to access the "Page selection" submenu.



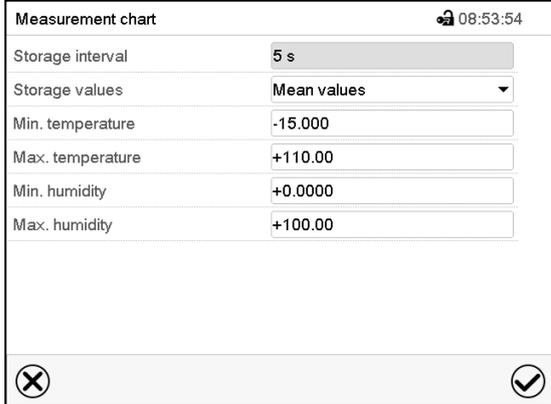
"Page selection" submenu.

Scroll buttons are shown on the left and on the right. Use them to move along the timeline.

11.2 Setting the parameters

This menu allows setting the storage interval, the type of values to be shown and the scaling of the temperature and humidity charts.

Path: [Main menu](#) > [Settings](#) > [Measurement chart](#)

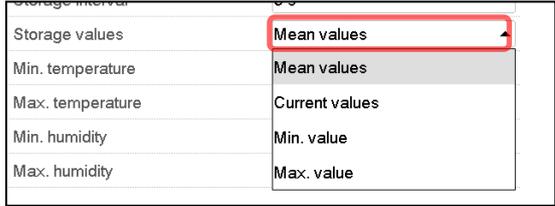


“Measurement chart” submenu.

- Select the field “Storage interval” and enter the desired storage interval. Confirm entry with **Confirm** icon.

The available presentation depends on the pre-selected storage rate. Factory setting: 60 seconds. This means the higher the storage rate, the more precisely but shorter the data representation will be.

- In the field “Storage values” select the desired value type to be displayed.



- For scaling the representation select the desired minimum and maximum temperature or humidity value and enter the desired values. Temperature display range: -20 °C up to 110 °C. Humidity display range: 0% r.h. up to 100% r.h. Confirm each entry with **Confirm** icon.

Setting the storage rate or rescaling (minimum and/or maximum) will clear the measured-value memory and the event list.

	NOTICE
	<p>Danger of information loss when setting the storage rate or rescaling.</p> <p>Data loss of measured-value memory and event list.</p> <p>➤ Change the storage rate or scaling ONLY if the previously registered data is no longer needed.</p>

After completing the settings, press the **Confirm** icon to take over the entries and exit the menu, **or** press the **Close** icon to exit the menu without taking over the entries.

12. Cleaning and decontamination

After all cleaning and decontamination procedures, allow the device to dry completely before re-using it. Disconnect the device from the power supply before cleaning. Pull the power plug.

12.1 Cleaning the measuring station

During cleaning, liquid may penetrate into the interior of the unit and lead to sparking on the housing. Pull the power plug before any cleaning of the device.

  	 DANGER
<p>Electrical hazard by water entering the device. Deadly electric shock.</p> <ul style="list-style-type: none"> Ø Do NOT spill water or cleaning agents over the outer surfaces of the device. Ø Do NOT immerse the device in liquids. Ø Do NOT put ANY cleaning aids (cloth or brush) into slots or openings on the device. ➤ Before cleaning, ensure that the device is disconnected from the power supply: Pull the power plug. ➤ Completely dry the device before turning it on again. 	

Wipe the surfaces with a moistened towel. In addition, you can use standard commercial cleaning detergents free from acid or halides. We recommend using the neutral cleaning agent Art. No. 1002-0016.

Do not use cleaning agents that may cause a hazard due to reaction with components of the device or the loading material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

	<p>We recommend using the neutral cleaning agent Art. No. 1002-0016 for a thorough cleaning.</p> <p>Any corrosive damage that may arise following use of other cleaning agents is excluded from liability by BINDER GmbH.</p> <p>Any corrosive damage caused by a lack of cleaning, is excluded from liability by BINDER GmbH.</p>
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	NOTICE
<p>Danger of corrosion by using unsuitable cleaners. Damage to the device.</p> <ul style="list-style-type: none"> Ø Do NOT use acidic or chlorine cleaning detergents. Ø Do NOT use a neutral cleaning agent on other kind of surfaces e.g., sensors). 	

	<p>For surface protection, perform cleaning as quickly as possible.</p> <p>After cleaning completely remove cleaning agents from the surfaces with a moistened towel. Let the device dry.</p>
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	Soapsuds may contain chlorides and must therefore NOT be used for cleaning.
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	With every cleaning method, always use adequate personal safety controls.
---	---

	The neutral cleaning agent may cause health problems in contact with skin and if ingested. Follow the operating instructions and safety hints labeled on the bottle of the neutral cleaning agent.
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Recommended precautions: To protect the eyes use sealed protective goggles. Wear gloves. Suitable protective gloves in full contact with media: butyl or nitrile rubber, penetration time >480 minutes.

	<table border="1"> <tr> <td data-bbox="539 680 1495 772" style="background-color: yellow; text-align: center;"> CAUTION</td> </tr> <tr> <td data-bbox="539 772 1495 1120"> <p>Danger of chemical burns through contact with skin or ingestion of the neutral cleaning agent.</p> <p>Skin and eye damage. Environmental damage.</p> <ul style="list-style-type: none"> ∅ Do not ingest the neutral cleaning agent. Keep it away from food and beverages. ∅ Do NOT empty the neutral cleaning agent into drains. ➤ Wear protective gloves and goggles. ➤ Avoid skin contact with the neutral cleaning agent. </td> </tr> </table>	 CAUTION	<p>Danger of chemical burns through contact with skin or ingestion of the neutral cleaning agent.</p> <p>Skin and eye damage. Environmental damage.</p> <ul style="list-style-type: none"> ∅ Do not ingest the neutral cleaning agent. Keep it away from food and beverages. ∅ Do NOT empty the neutral cleaning agent into drains. ➤ Wear protective gloves and goggles. ➤ Avoid skin contact with the neutral cleaning agent.
 CAUTION			
<p>Danger of chemical burns through contact with skin or ingestion of the neutral cleaning agent.</p> <p>Skin and eye damage. Environmental damage.</p> <ul style="list-style-type: none"> ∅ Do not ingest the neutral cleaning agent. Keep it away from food and beverages. ∅ Do NOT empty the neutral cleaning agent into drains. ➤ Wear protective gloves and goggles. ➤ Avoid skin contact with the neutral cleaning agent. 			

12.2 Cleaning the sensors

Before and after each measurement inside a climatic chamber/climate room, hygienically clean both sensors with their cables.

Clean the equipment after each use in order to prevent potential corrosion damage by ingredients of the loading material.

For cleaning, the sensors can be wiped with a damp cloth. The humidity sensor must not be immersed in liquids.

	<table border="1"> <tr> <td data-bbox="395 1447 1484 1538" style="background-color: red; text-align: center;"> DANGER</td> </tr> <tr> <td data-bbox="395 1538 1484 1930"> <p>Electrical hazard by water entering the equipment.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ➤ Before cleaning, ensure that the device is disconnected from the power supply: pull the power plug. Let both sensors cool down to ambient temperature. ➤ Dry the sensors and cables completely before re-commissioning. </td> </tr> </table>	 DANGER	<p>Electrical hazard by water entering the equipment.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ➤ Before cleaning, ensure that the device is disconnected from the power supply: pull the power plug. Let both sensors cool down to ambient temperature. ➤ Dry the sensors and cables completely before re-commissioning.
 DANGER			
<p>Electrical hazard by water entering the equipment.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> ➤ Before cleaning, ensure that the device is disconnected from the power supply: pull the power plug. Let both sensors cool down to ambient temperature. ➤ Dry the sensors and cables completely before re-commissioning. 			

12.3 Decontamination / chemical disinfection of the sensors and cables

The operator must ensure that proper decontamination is performed in case a contamination of the device by hazardous substances has occurred.

Disconnect the device from the power supply prior to chemical decontamination. Pull the power plug.

Do not use decontamination agents that may cause a hazard due to reaction with components of the device or the loading material. If there is doubt regarding the suitability of cleaning products, please contact BINDER service.

	<p>For chemical disinfection, we recommend using the disinfectant spray Art. No. 1002-0022. Any corrosive damage that may arise following use of other disinfectants is excluded from liability by BINDER GmbH.</p>
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	<p>With every decontamination / disinfection method, always use adequate personal safety controls.</p>
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	<p>In case of eye contact, the disinfectant spray may cause eye damage due to chemical burns. Follow the operating instructions and safety hints labeled on the bottle of the disinfectant spray.</p>
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Recommended precautions: To protect the eyes use sealed protective goggles.

	<table border="1"> <tr> <td colspan="2" data-bbox="539 1005 1495 1093" style="background-color: yellow; text-align: center;">  CAUTION </td> </tr> <tr> <td colspan="2" data-bbox="539 1093 1495 1167"> <p>Danger of chemical burns through eye contact with the disinfectant spray.</p> </td> </tr> <tr> <td colspan="2" data-bbox="539 1167 1495 1211"> <p>Eye damage. Environmental damage</p> </td> </tr> <tr> <td data-bbox="539 1211 1093 1256"> <p>Ø Do NOT empty the disinfectant into drains.</p> </td> <td data-bbox="1093 1211 1495 1256"></td> </tr> <tr> <td colspan="2" data-bbox="539 1256 1495 1310"> <p>➤ Wear protective goggles.</p> </td> </tr> </table>	 CAUTION		<p>Danger of chemical burns through eye contact with the disinfectant spray.</p>		<p>Eye damage. Environmental damage</p>		<p>Ø Do NOT empty the disinfectant into drains.</p>		<p>➤ Wear protective goggles.</p>	
 CAUTION											
<p>Danger of chemical burns through eye contact with the disinfectant spray.</p>											
<p>Eye damage. Environmental damage</p>											
<p>Ø Do NOT empty the disinfectant into drains.</p>											
<p>➤ Wear protective goggles.</p>											

	<p>After using the disinfectant spray, allow the sensors to dry thoroughly, and aerate them sufficiently.</p>
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13. Maintenance and service, troubleshooting, repair, testing and calibration service

13.1 General information, personnel qualification

- **Maintenance**

See chap. 13.2

- **Simple troubleshooting**

Chap. 13.3 describes troubleshooting by operating personnel. It does not require technical intervention into the device, nor disassembly of device parts.

For personnel requirements please refer to chap. 1.1.

- **Detailed troubleshooting**

If errors cannot be identified with simple troubleshooting, further troubleshooting must be performed by BINDER Service or by BINDER qualified service partners or technicians.

- **Repair**

Repair of the device can be performed by BINDER Service or by BINDER qualified service partners or technicians, in accordance with the description in the Service Manual.

After maintenance, the device must be tested prior to resuming operation.

- **Electrical testing**

To prevent the risk of electrical shock from the electrical equipment of the device, an annual repeat inspection as well as a test prior to initial startup and prior to resuming operation after maintenance or repair, are required. This test must meet the requirements of the competent public authorities. We recommend testing under EN 50678/VDE 0701 and EN 50699/VDE 0702.

13.2 Maintenance intervals, service

 	<div style="background-color: red; color: white; text-align: center; padding: 5px;">  DANGER </div> <p>Electrical hazard during live maintenance work.</p> <p>Deadly electric shock.</p> <ul style="list-style-type: none"> Ø The device must NOT become wet during operation or maintenance works. Ø Do NOT remove the rear panel of the device. ➤ Before conducting maintenance work, ensure that the device is disconnected from the power supply: pull the power plug ➤ Make sure that general maintenance work will be conducted by licensed electricians or experts authorized by BINDER.
--	---

Ensure regular maintenance work is performed at least once a year and that the legal requirements are met regarding the qualifications of service personnel, scope of testing and documentation. All work on the refrigeration system (repairs, inspections) must be documented.

	<p>The warranty becomes void if maintenance work is conducted by non-authorized personnel.</p>
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13.3 Simple troubleshooting

Defects and shortcomings can compromise the operational safety of the device and can lead to risks and damage to equipment and persons. If there is a technical fault or shortcoming, take the device out of operation and inform BINDER Service. If you are not sure whether there is a technical fault, proceed according to the following list. If you cannot clearly identify an error or there is a technical fault, please contact BINDER Service.

	Only qualified service personnel authorized by BINDER must perform repair. Repaired devices must comply with the BINDER quality standards.
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Fault description	Possible cause	Required measures
General		
Device without function.	No power supply.	Check connection to power supply.
	Wrong voltage.	Check power supply for correct voltage (chap. 4.3).
	Device fuse has responded.	Check device fuse and replace it if appropriate. If it responds again, contact BINDER service.
	Controller defective.	Contact BINDER service.
Controller		
No device function (dark display).	Display mode "Standby" active.	Press on touchscreen.
	Main power switch turned off.	Turn on the main power switch.
Menu functions not available.	Menu functions not available with current authorization level.	Log in with the required higher authorization. or contact BINDER service to obtain an activation code (chap. 8.6).
No access to controller	Password incorrect.	Contact BINDER service.
Chart recorder function: measured-value memory cleared; information lost.	New setting of storage rate or scaling (minimum and/or maximum) (chap. 11.2).	Change the storage rate or scaling ONLY if the previously registered data are no longer required.
Acknowledging the alarm does not cancel the alarm state.	Cause of alarm persists.	Remove cause of alarm. If the alarm state continues, contact BINDER service.
Alarm message: - - - - or <-<-< or >->->	Sensor rupture between sensor and controller or Pt 100 sensor defective.	Contact BINDER service.
	Short-circuit.	

	Guarantee / repair and maintenance tasks must only be performed by persons or workshops that have been authorized by BINDER. Otherwise, BINDER will perform the tasks itself. If you do not know whom to contact in the event of a fault, contact us and we will advise you of the nearest authorized workshop.
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Never try to open the device in order to repair it. In case of problems or for calibration service please contact BINDER service at one of the indicated addresses:

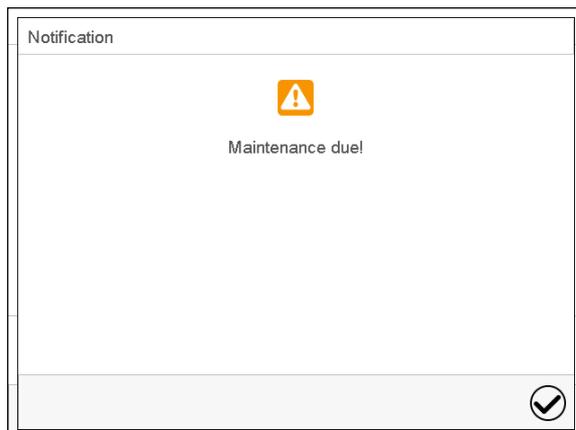
BINDER telephone hotline:	+49 (0) 7462 2005 555
BINDER fax hotline:	+49 (0) 7462 2005 93555
BINDER service hotline USA:	+1 866 885 9794 or +1 631 224 4340 x3 (toll-free in the USA)
BINDER service hotline Asia Pacific:	+852 390 705 04 or +852 390 705 03
BINDER service hotline Russia and CIS	+7 495 988 15 16
BINDER Internet website	http://www.binder-world.com
BINDER address	BINDER GmbH, post office box 102, 78502 Tuttlingen, Germany

International customers, please contact your local BINDER distributor.

When calling us, please provide the following information:

- Unit type and serial number
- Date of purchase (see invoice / purchase slip)
- Kind of fault / description of the defect
- Your full address and the installation location (building, department)
- Times at which we can contact you

After 8760 operating hours or two years the following message appears:



After confirmation with the **Confirm** icon, the message window will pop up again every two weeks until it is reset by BINDER Service.

13.4 Sending a device back to BINDER GmbH

If you return a BINDER product to us for repair or any other reason, we will only accept the product upon presentation of an **authorization number** (RMA number) that has previously been issued to you. An authorization number will be issued after receiving your complaint either in writing or by telephone **prior** to your sending the BINDER product back to us. The authorization number will be issued following receipt of the information below:

- BINDER product type and serial number
- Date of purchase
- Name and address of the dealer from which you bought the BINDER product
- Exact description of the defect or fault
- Complete address, contact person and availability of that person
- Exact location of the BINDER product in your facility
- A contamination clearance certificate (chap. 17) must be faxed in advance

The authorization number must be applied to the packaging in such a way that it can be easily recognized or be recorded clearly in the delivery documents.



For security reasons we cannot accept a device delivery if it does not carry an authorization number.

Return address: BINDER GmbH Gänsäcker 16
 Abteilung Service 78502 Tuttlingen
 Germany

14. Disposal

14.1 Disposal of the transport packing

Packing element	Material	Disposal
Transport box	Cardboard	Paper recycling
Foamed plastic stuffing	PE foam	Plastic recycling
Bag for operating manual	PE foil	Plastic recycling
Insulating air cushion foil	PE foil	Plastic recycling

If recycling is impossible, all packing parts can also be disposed of with normal waste.

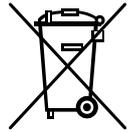
14.2 Decommissioning

- Disconnect the device from the power supply: Pull the power plug.
- Temporal decommissioning: See indications for appropriate storage, chap. 3.3.
- Final decommissioning: Dispose of the device as described in chap. 14.3 to 14.5.

14.3 Disposal of the device in the Federal Republic of Germany

According to Annex I of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as “monitoring and control instruments” (category 9) only intended for professional use”. They must not be disposed of at public collecting points.

The device bears the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) and German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG). WEEE marking: crossed-out wheeled bin with solid bar under. A significant part of the materials must be recycled in order to protect the environment.



At the end of the device's service life, have the device disposed of according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739) or contact BINDER service who will organize taking back and disposal of the device according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739).

	NOTICE
	<p>Danger of violation against existing law if not disposed of properly.</p> <p>Failure to comply with applicable law.</p> <ul style="list-style-type: none"> ⊘ Do NOT dispose of BINDER devices at public collecting points. ➤ Have the device disposed of professionally at a recycling company which is certified according to the German national law for electrical and electronic equipment (Elektro- und Elektronikgerätegesetz, ElektroG from 20 October 2015, BGBl. I p. 1739). <li style="text-align: center;"><i>or</i> ➤ Instruct BINDER Service to dispose of the device. The general terms of payment and delivery of BINDER GmbH apply, which were valid at the time of purchasing the device.

Certified companies disassemble waste (used) BINDER equipment in primary substances for recycling according to Directive 2012/19/EU. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

	<p>Prior to handing the device over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances.</p> <ul style="list-style-type: none"> • Prior to disposal, clean all introduced or residual toxic substances from the device. • Prior to disposal, disinfect the device from all sources of infection. • If you cannot safely remove all toxic substances and sources of infection from the device, dispose of it as special waste according to national law. • Fill out the contamination clearance certificate (chap. 17) and enclose it with the device.
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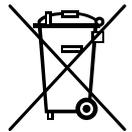
	 WARNING
	<p>Danger of intoxication and infection through contamination of the device with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> ⊘ NEVER take a device contaminated with toxic substances or sources of infection for recycling according to Directive 2012/19/EU. ➤ Prior to disposal, remove all toxic substances and sources of infection from the device. ➤ A device from which all toxic substances or sources of infection cannot be safely removed must be considered as "special" waste according to national law. Dispose of it accordingly.

The main board of the device includes a lithium cell. As the end user, you are legally obliged to return used batteries. Old batteries and rechargeable batteries must not be disposed of with household waste. They can be handed in free of charge at the community's public collection points and wherever batteries and accumulators of the type in question are sold.

14.4 Disposal of the device in the member states of the EU except for the Federal Republic of Germany

According to Annex I of Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE), BINDER devices are classified as "monitoring and control instruments" (category 9) only intended for professional use". They must not be disposed of at public collecting points.

The device bears the symbol for the marking of electrical and electronic equipment manufactured / placed on the market in the EU after 13 August 2005 and be disposed of in separate collection according to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). WEEE marking: crossed-out wheeled bin with solid bar under.



At the end of the device's service life, notify the distributor who sold you the device, who will take back and dispose of the device according to the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

	<div style="background-color: #00AEEF; color: white; text-align: center; padding: 5px;">NOTICE</div> <p>Danger of violation against existing law if not disposed of properly.</p> <p>Failure to comply with applicable law.</p> <ul style="list-style-type: none"> ⊘ Do NOT dispose of BINDER devices at public collecting points. ➤ Have the device disposed of professionally at a recycling company that is certified according to conversion of the Directive 2012/19/EU into national law. <li style="padding-left: 20px;"><i>or</i> ➤ Instruct the distributor who sold you the device to dispose of it. The agreements apply that were agreed with the distributor when purchasing the device (e.g. his general terms of payment and delivery). ➤ If your distributor is not able to take back and dispose of the device, please contact BINDER service.
--	---

Certified companies disassemble waste (used) BINDER equipment in primary substances for recycling according to Directive 2012/19/EU. The devices must be free from toxic, infectious or radioactive substances in order to eliminate any health hazards to the employees of the recycling companies.

	<p>Prior to handing the device over to a recycling company, it is the user's responsibility that it is free from toxic, infectious or radioactive substances.</p> <ul style="list-style-type: none"> • Prior to disposal, clean all introduced or residual toxic substances from the device. • Prior to disposal, disinfect the device from all sources of infection. • If you cannot safely remove all sources of infection and toxic substances from the device, dispose of it as special waste according to national law. • Fill out the contamination clearance certificate (chap. 17) and enclose it with the device.
---	--

	WARNING
	<p>Danger of intoxication and infection through contamination of the device with toxic, infectious or radioactive substances.</p> <p>Damages to health.</p> <ul style="list-style-type: none"> Ø NEVER take a device contaminated with toxic substances or sources of infection for recycling according to Directive 2012/19/EU. ➤ Prior to disposal, remove all toxic substances and sources of infection from the device. ➤ A device from which all toxic substances or sources of infection cannot be safely removed must be considered as “special” waste according to national law. Dispose of it accordingly.

The main board of the device includes a lithium cell. The disposal of batteries within the EU must be carried out in accordance with the current EU directives as well as national, regional and local environmental protection regulations.

14.5 Disposal of the device in non-member states of the EU

 	NOTICE
	<p>Danger of violation against existing law if not disposed of properly.</p> <p>Failure to comply with applicable law. Alteration of the environment.</p> <ul style="list-style-type: none"> ➤ For final decommissioning and disposal of the device, please contact BINDER service. ➤ Follow the statutory regulations for appropriate, environmentally friendly disposal.

The main board of the device includes a lithium cell. Used batteries must be disposed of properly. Please ensure that you dispose of the battery in accordance with the regulations in force in your country.

15. Technical description

15.1 Factory calibration and adjustment

The devices were calibrated and adjusted in the factory. Calibration and adjustment were performed using standardized test instructions, according to the QM DIN EN ISO 9001 system applied by BINDER (certified since December 1996 by TÜV CERT). All test equipment used is subject to the administration of measurement and test equipment that is also a constituent part of the BINDER QM DIN EN ISO 9001 systems. They are controlled and calibrated to a DKD-Standard at regular intervals.

	Repeated calibrations are recommended in periods of 12 months.
---	--

For BINDER calibration service addresses, see chap. 13.3

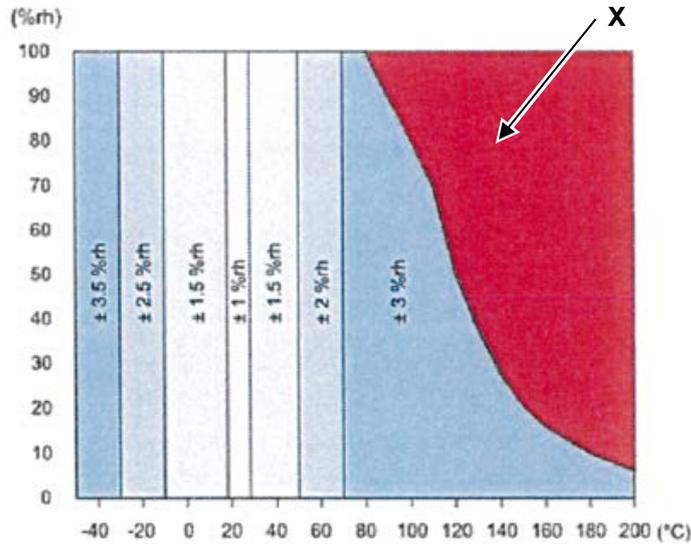
15.2 BINDER Monitoring System Technical data

Temperature measurement	
Temperature measurement range	-40 °C up to +180 °C / -40 °F up to 356 °F
Temperature sensor	Pt 100 1/3 DIN
Temperature measurement accuracy	+/- 0.3 K
Temperature display accuracy	0.1 °C
Humidity measurement	
Humidity measuring range	0 % r.H. up to 100 % r.H.
Humidity sensor	Capacitive sensor
Humidity measurement accuracy at 22 °C +/- 3 °C / 71.6 °F +/- 5.4 °F	± 1 % r.H.
Humidity display accuracy	0,1 % r.H.
Reproducibility	+/- 0,3 % r.H.
Long-term stability	< 1 % r.H. / year
Installation	
Installation of the sensors	Directly inside the climatic chamber/climate room
Length of connection cable (temperature sensor to measuring station)	2 m / 6.6 ft
Length of connection cable (humidity sensor to measuring station)	2 m / 6.6 ft
Electrical connection	
Nominal voltage and power frequency	115-240 V AC / 50 Hz, 115-240 V AC / 60 Hz
Power supply line (IEC connector plug)	2 m / 6.6 ft
Power plug	shock proof plug
Adjustment	
Adjustment of temperature and humidity	via keyboard
Adjustment interval	annually
Ambient conditions	
Ambient temperature for measuring station during operation	+5 °C up to +40 °C / 41 °F up to 104 °F
Ambient temperature for measuring station during storage	-10 °C up to +60 °C / 14 °F up to 140 °F.
Permitted ambient humidity for measuring station	0 % r.H. up to 70 % r.H. (non-condensing)
Ambient temperature for temperature sensor during operation	-40 °C up to +180 °C / -40 °F up to 356 °F
Ambient temperature for humidity sensor during operation	0 % r.H. up to 100 % r.H.
Dimensions and features	
External dimensions measuring station	430 mm x 400 mm x 145 mm (B x H x T) 16.93 in x 15.75 in x 5.71 in (W x H x D)
Weight of measuring station	5,42 kg
IP protection type of temperature sensor	IP 20
IP protection type of humidity sensor	IP 20
IP protection type of measuring station	IP 20
Measured value output	Ethernet interface
Software for acquisition of measuring values	APT-COM™ 4 (accessory)

15.3 Operating range of the sensors

Temperature measuring range: -50 °C / -58 °F up to +200 °C / 392 °F

Humidity measuring range: 0 % r.H. up to 100 % r.H.



Operating the sensor in the red area (X) will destroy the sensor.

Figure 9: Operating range and precision of the humidity sensor

	NOTICE
<p>Danger of destruction of the humidity sensor when operating it in the red area (X). Destruction of the equipment.</p> <p>➤ Use the humidity sensor ONLY within a temperature/humidity range outside the red area (X) shown in Figure 9.</p>	

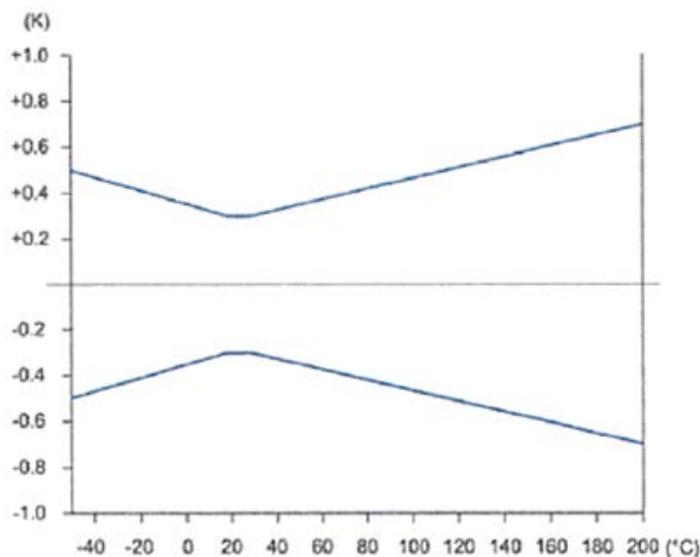


Figure 10: Operating range and precision of the temperature sensor

16. Certificates and declarations of conformity

16.1 EU Declaration of Conformity



CE EU-Konformitätserklärung / EU Declaration of Conformity / Déclaration de conformité UE / Declaración de conformidad UE / Dichiarazione di conformità UE / Декларация соответствия EU

Hersteller / Manufacturer / Fabricant / Fabricante / Fabbicante / Производитель	BINDER GmbH
Anschrift / Address / Adresse / Dirección / Indirizzo / Адрес	Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Produkt / Product / Produit / Producto / Prodotto / Продукт	BINDER Monitoring System
Typenbezeichnung / Type / Type / Tipo / Tipo / Тип	Temperatur / Feuchte Messgerät Temperature / Humidity Measuring Device Appareil de mesure de température / humidité Dispositivo de medición de temperatura / humedad Dispositivo di misurazione della temperatura / umidità Устройство измерения температуры / влажности
Art. No. / Art. no. / Réf. / Art. N° / Art. n. / № арт.	8012-2579

Die oben beschriebenen Produkte sind konform mit folgenden EU-Richtlinien:

The products described above are in conformity with the following EU Directives:

Les produits décrits ci-dessus sont conformes aux directives UE suivantes :

Los productos descritos arriba cumplen con las siguientes directivas de la UE:

I prodotti sopra descritti sono conformi alle seguenti direttive UE:

Продукты, указанные выше, полностью соответствуют следующим EU руководствам:

- **2014/35/EU**
Niederspannungsrichtlinie 2014/35/EU / Low voltage directive 2014/35/EU / Directive basse tension 2014/35/UE / Directiva sobre baja tensión 2014/35/UE / Direttiva Bassa tensione 2014/35/UE / Директива по низкому напряжению 2014/35/EU
- **2014/30/EU**
EMV-Richtlinie 2014/30/EU / EMC Directive 2014/30/EU / Directive CEM 2014/30/UE / Directiva CEM 2014/30/UE / Direttiva EMC 2014/30/UE / Директива ЭМС 2014/30/EU
- **2011/65/EU, (EU) 2015/863**
RoHS-Richtlinien 2011/65/EU und (EU) 2015/863 / RoHS Directives 2011/65/EU and (EU) 2015/863 / Directives RoHS 2011/65/UE et (UE) 2015/863 / Directivas RoHS 2011/65/UE y (UE) 2015/863 / Direttive RoHS 2011/65/UE et (UE) 2015/863 / Директивы RoHS 2011/65/EU и (EU) 2015/863

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Geschäftsführung:
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Michael Binder-Pfaff, Peter Wimmer,
Benjamin Jeuthe
Amtsgericht Stuttgart, HRB 727150
Sitz der Gesellschaft: Tuttlingen
Ust.-ID.-Nr.: DE815021304

Kreissparkasse Tuttlingen
IBAN: DE05 6435 0070 0000 0022 66
SWIFT: SOLA DE 31TUT
Deutsche Bank Tuttlingen
IBAN: DE56 6537 0075 0213 8709 00
SWIFT: DEUT DE 33653

Die oben beschriebenen Produkte tragen entsprechend die Kennzeichnung CE.
The products described above, corresponding to this, bear the CE-mark.
Les produits décrits ci-dessus, en correspondance, portent l'indication CE.
Los productos descritos arriba, en conformidad, llevan la indicación CE.
I prodotti sopra descritti, conformi a quanto sopra, portano il marchio CE.
Данные продукты в соответствии с изложенным выше маркированы знаком CE.

Die oben beschriebenen Produkte sind konform mit folgenden harmonisierten Normen:
The products described above are in conformity with the following harmonized standards:
Les produits décrits ci-dessus sont conformes aux normes harmonisées suivantes:
Los productos descritos arriba cumplen con las siguientes normas:
I prodotti sopra descritti sono conformi alle seguenti normative armonizzate:
Продукты, указанные выше, полностью соответствуют следующим стандартам:

2014/35/EU
<ul style="list-style-type: none">• EN 61010-1:2010+A1:2019+A1:2019/AC:2019• EN 60204-1:2018
2014/30/EU
<ul style="list-style-type: none">• EN 61326-1:2021• EN IEC 61326-2-2:2021
2011/65/EU, (EU) 2015/863
<ul style="list-style-type: none">• EN IEC 63000:2018

78532 Tuttlingen, 20.03.2025

BINDER GmbH



P. Wimmer
Chief Technology Officer
Chief Technology Officer (CTO)
Directeur de la technologie
Director de la tecnología
Direttore tecnico
Главный технический директор



J. Bollaender
Leiter F & E
Director R & D
Chef de service R&D
Responsable I & D
Direttore R & D
Глава департамента R&D

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IBAN: DE05 6435 0070 0000 0022 66
SWIFT: SOLA DE 31TUT
Deutsche Bank Tuttlingen
IBAN: DE56 6537 0075 0213 8709 00
SWIFT: DEUT DE 55653

16.2 UKCA Declaration of Conformity



	<h3>UKCA Declaration of Conformity</h3>
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Name and address of manufacturer	BINDER GmbH Im Mittleren Ösch 5, 78532 Tuttlingen, Germany
Name and address of UK Authorised Representative	Comply Express Ltd Unit C2, Coalport House, Stafford Park 1, Telford TF3 3BD
Object of the Declaration	BINDER Monitoring System
Type Designation	Temperature / Humidity Measuring Device
BINDER Art. No.	8012-2579

The Objects of the Declaration described above are in conformity with the relevant UK Regulations and UK Guidelines:

- | |
|--|
| <ul style="list-style-type: none"> • Electrical Equipment (Safety) Regulations 2016
Statutory Instruments 2016 No. 1101 – Consumer Protection Health and safety • Electromagnetic Compatibility Regulations 2016
Statutory Instruments 2016 No. 1091 – Electromagnetic Compatibility • The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
Statutory Instruments 2012 No. 3032 – Environmental Protection |
|--|

References of standards and/or technical specifications applied for this Declaration of Conformity, or parts thereof:

S.I. 2016 No. 1101:	EN 61010-1:2010+A1:2019+A1:2019/AC:2019 EN 60204-1:2018
S.I. 2016 No. 1091:	EN 61326-1:2021 EN IEC 61326-2-2:2021
S.I. 2012 No. 3032:	EN IEC 63000:2018

This Declaration is issued under the sole responsibility of the manufacturer.

	Tuttlingen	20.03.2025	 		
Place	Date		P. Wimmer Chief Technology Officer	J. Bollaender Director R & D	BINDER GmbH

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Deutsche Bank Tuttlingen
IBAN: DE56 6537 0075 0213 8709 00
SWIFT: DEUT DE 55653

17. Contamination clearance certificate

17.1 For devices located outside USA and Canada

Declaration regarding safety and health

Erklärung zur Sicherheit und gesundheitlichen Unbedenklichkeit

The German Ordinance on Hazardous Substances (GefStofV), and the regulations regarding safety at the workplace, require that this form be filled out for all products that are returned to us, so that the safety and the health of our employees can be guaranteed

Die Sicherheit und Gesundheit unserer Mitarbeiter, die Gefahrstoffverordnung GefStofV und die Vorschriften zur Sicherheit am Arbeitsplatz machen es erforderlich, dass dieses Formblatt für alle Produkte, die an uns zurückgeschickt werden, ausgefüllt wird.



Note: A repair is not possible without a completely filled out form.

Ohne Vorliegen des vollständig ausgefüllten Formblattes ist eine Reparatur nicht möglich.

- A completely filled out form must be transmitted via Fax (+49 (0) 7462 2005 93555) or by letter in advance, so that this information is available before the equipment/component part arrives. A second copy of this form must accompany the equipment/component part. In addition, the carrier should be notified.

Eine vollständig ausgefüllte Kopie dieses Formblattes soll per Fax unter Nr. +49 (0) 7462 2005 93555 oder Brief vorab an uns gesandt werden, so dass die Information vorliegt, bevor das Gerät/Bauteil eintrifft. Eine weitere Kopie soll dem Gerät/Bauteil beigelegt sein. Ggf. ist die Spedition zu informieren.

- Incomplete information or non-conformity with this procedure will inevitably lead to substantial delays in processing. Please understand the reason for this measure, which lies outside our area of influence, and will help us to speed up this procedure.

Unvollständige Angaben oder Nichteinhalten dieses Ablaufs führen zwangsläufig zu beträchtlichen Verzögerungen in der Abwicklung. Bitte haben Sie Verständnis für Maßnahmen, die außerhalb unserer Einflussmöglichkeiten liegen und helfen Sie mit, den Ablauf zu beschleunigen.

- **Please print and fill out this form completely**

Bitte unbedingt vollständig ausfüllen!

1.	Unit/ component part / type / Gerät / Bauteil / Typ:
2.	Serial No. / Serien-Nr.:
3.	Details about utilized substances / biological substances / Einzelheiten über die eingesetzten Substanzen/biologische Materialien:
3.1	Designations / Bezeichnungen:
a)	_____
b)	_____
c)	_____
3.2	Safety measures required for handling these substances / Vorsichtsmaßnahmen beim Umgang mit diesen Stoffen:
a)	_____
b)	_____
c)	_____

3.3	Measures to be taken in case of skin contact or release into the atmosphere / Maßnahmen bei Personenkontakt oder Freisetzung: a) _____ b) _____ c) _____ d) _____
3.4	Other important information that must be taken into account / Weitere zu beachtende und wichtige Informationen: a) _____ b) _____ c) _____
4.	Declaration on the risk of these substances (please checkmark the applicable items) / Erklärung zur Gefährlichkeit der Stoffe (bitte Zutreffendes ankreuzen) :
<input type="checkbox"/>	4.1 For non toxic, non radioactive, biologically harmless materials / für nicht giftige, nicht radioaktive, biologisch ungefährliche Stoffe: We hereby guarantee that the above-mentioned unit / component part... / Wir versichern, dass o.g. Gerät/Bauteil... <input type="checkbox"/> Has not been exposed to or contains any toxic or otherwise hazardous substances / weder giftige noch sonstige gefährliche Stoffe enthält oder solche anhaften. <input type="checkbox"/> That eventually generated reaction products are non-toxic and also do not represent a hazard / auch evtl. entstandene Reaktionsprodukte weder giftig sind noch sonst eine Gefährdung darstellen. <input type="checkbox"/> Eventual residues of hazardous substances have been removed / evtl. Rückstände von Gefahrstoffen entfernt wurden.
<input type="checkbox"/>	4.2 For toxic, radioactive, biologically harmful or hazardous substances, or any other hazardous materials / für giftige, radioaktive, biologisch bedenkliche bzw. gefährliche Stoffe oder anderweitig gefährliche Stoffe. We hereby guarantee that ... / Wir versichern, dass ... <input type="checkbox"/> The hazardous substances, which have come into contact with the above-mentioned equipment / component part, have been completely listed under item 3.1 and that all information in this regard is complete / die gefährlichen Stoffe, die mit dem o.g. Gerät/Bauteil in Kontakt kamen, in 3.1 aufgelistet sind und alle Angaben vollständig sind. <input type="checkbox"/> That the unit /component part has not been in contact with radioactivity / das Gerät/Bauteil nicht mit Radioaktivität in Berührung kam
5.	Kind of transport / transporter / Transportweg/Spediteur: Transport by (means and name of transport company, etc.) / Versendung durch (Name Spediteur o.ä.) _____ Date of dispatch to BINDER GmbH / Tag der Absendung an BINDER GmbH: _____

We hereby declare that the following measures have been taken / Wir erklären, dass folgende Maßnahmen getroffen wurden:

- Hazardous substances were removed from the unit including component parts, so that no hazard exists for any person in the handling or repair of these items / das Gerät/Bauteil wurde von Gefahrstoffen befreit, so dass bei Handhabung/Reparaturen für die betreffenden Person keinerlei Gefährdung besteht
- The unit was securely packaged and properly identified / das Gerät wurde sicher verpackt und vollständig gekennzeichnet.
- Information about the hazardousness of the shipment (if required) has been provided to the transporter / der Spediteur wurde (falls vorgeschrieben) über die Gefährlichkeit der Sendung informiert.

We hereby commit ourselves and guarantee that we will indemnify BINDER GmbH for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will exempt BINDER GmbH from eventual damage claims by third parties./ Wir versichern, dass wir gegenüber BINDER für jeden Schaden, der durch unvollständige und unrichtige Angaben entsteht, haften und BINDER gegen eventuell entstehende Schadenersprüche Dritter freistellen.

We are aware that, in accordance with Article 823 of the German Civil Code (BGB), we are directly liable with regard to third parties, in this instance especially the employees of BINDER GmbH, who have been entrusted with the handling / repair of the unit / component. / Es ist uns bekannt, dass wir gegenüber Dritten – hier insbesondere mit der Handhabung/Reparatur des Geräts/des Bauteils betraute Mitarbeiter der Firma BINDER - gemäß §823 BGB direkt haften

Name: _____

Position/ Title: _____

Date / Datum: _____

Signature / Unterschrift: _____

Company stamp / Firmenstempel:



Equipment that is returned to the factory for repair must be accompanied by a completely filled out contamination clearance certificate. For service and maintenance on site, such a contamination clearance certificate must be submitted to the service technician before the start of any work. No repair or maintenance of the equipment is possible, without a properly filled out contamination clearance certificate.

17.2 For devices located in USA and Canada

Product Return Authorization Request

Please complete this form and the Customer Decontamination Declaration (next 2 pages) and attach the required pictures. E-mail to: IDL_SalesOrderProcessing_USA@binder-world.com

After we have received and reviewed the complete information we will decide on the issue of a RMA number. Please be aware that size specifications, voltage specifications as well as performance specifications are available on the internet at www.binder-world.us at any time.

Take notice of shipping laws and regulations.

	Please fill:	
Reason for return request	<input type="radio"/> Duplicate order	
	<input type="radio"/> Duplicate shipment	
	<input type="radio"/> Demo	<i>Page one completed by sales</i>
	<input type="radio"/> Power Plug / Voltage	115V / 230 V / 208 V / 240V
	<input type="radio"/> Size does not fit space	
	<input type="radio"/> Transport Damage	Shock watch tripped? (<i>pictures</i>)
	<input type="radio"/> Other (specify below)	

Is there a replacement PO?	<input type="radio"/> Yes <input type="radio"/> No	
<i>If yes -> PO #</i>		
<i>If yes -> Date PO placed</i>		
Purchase order number		
BINDER model number		
BINDER serial number		
Date unit was received		
Was the unit unboxed?	<input type="radio"/> Yes <input type="radio"/> No	
Was the unit plugged in?	<input type="radio"/> Yes <input type="radio"/> No	
Was the unit in operation?	<input type="radio"/> Yes <input type="radio"/> No	
<i>Pictures of unit attached?</i>	<input type="radio"/> Yes <input type="radio"/> No	Pictures have to be attached!
<i>Pictures of Packaging attached?</i>	<input type="radio"/> Yes <input type="radio"/> No	

	Customer Contact Information	Distributor Contact Information
Name		
Company		
Address		
Phone		
E-mail		

Customer (End User) Decontamination Declaration

Health and Hazard Safety declaration

To protect the health of our employees and the safety at the workplace, we require that this form is completed by the user for all products and parts that are returned to us. (Distributors or Service Organizations cannot sign this form)

	NO RMA number will be issued without a completed form. Products or parts returned to our NY warehouse without an RMA number will be refused at the dock.
---	--

A second copy of the completed form must be attached to the outside of the shipping box.

1. Unit/ component part / type:
2. Serial No.
3. List any exposure to hazardous liquids, gasses or substances and radioactive material
3.1 List with MSDS sheets attached where available or needed (if there is not enough space available below, please attach a page): a) _____ b) _____ c) _____
3.2 Safety measures required for handling the list under 3.1
a) _____ b) _____ c) _____
3.3 Measures to be taken in case of skin contact or release into the atmosphere:
a) _____ b) _____ c) _____ d) _____
3.4 Other important information that must be considered:
a) _____ b) _____ c) _____

4. Declaration of Decontamination

For toxic, radioactive, biologically and chemically harmful or hazardous substances, or any other hazardous materials.

We hereby guarantee that

- 4.1 Any hazardous substances, which have come into contact with the above-mentioned equipment / component part, have been completely listed under item 3.1 and that all information in this regard is complete.
- 4.2 That the unit /component part has not been in contact with radioactivity
- 4.3 Any Hazardous substances were removed from the unit / component part, so that no hazard exists for a person in the shipping, handling or repair of these returned unit
- 4.4 The unit was securely packaged in the original undamaged packaging and properly identified on the outside of the packaging material with the unit designation, the RMA number and a copy of this declaration.
- 4.5 Shipping laws and regulations have not been violated.

I hereby commit and guarantee that we will indemnify BINDER Inc. for all damages that are a consequence of incomplete or incorrect information provided by us, and that we will indemnify and hold harmless BINDER Inc. from eventual damage claims by third parties.

Name: _____

Position: _____

Company: _____

Address: _____

Phone #: _____

Email: _____

Date: _____

Signature: _____



Equipment returned to the NY warehouse for repair must be accompanied by a completed customer decontamination declaration. For service and maintenance works on site, such a customer decontamination declaration must be submitted to the service technician before the start of work. No repair or maintenance of the equipment is possible without a completed form.

